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**Internationalization of young, technology-based firms: an
organizational learning and social capital perspective**

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Summary

Research has shown that export-oriented entrepreneurship enhances the competitiveness of start-ups and contributes to macro-economic growth. New and young firms enter the international arena to expand their customer base and to gain access to new knowledge and technologies (European Commission, 2004). Although internationalization is an appealing avenue to realize firm growth, the process of going international is characterized by external and internal barriers that hinder fast international expansion (Leonidou, 2004). Therefore, the topic of international entrepreneurship received considerable attention from both policy makers (e.g. see OECD 2004) and academics (e.g. see Strategic Entrepreneurship Journal, special issue on International Entrepreneurship, forthcoming). This dissertation consists of three empirical studies that bring more insights in the internationalization of young, technology-based firms.

The first paper (Chapter 3) explores the extent of internationalization of young, technology-based firms. Here, I use organizational learning theory to study how different types of learning influence the internationalization of firms. This part also studies the interaction effects between interorganizational learning and experiential and congenital learning, respectively. The second paper (Chapter 4) provides more insights in the antecedents of interorganizational trust. Trust between two exchange partners is very important since high trust lowers transaction costs, stimulates knowledge sharing, and even contributes to higher relationship performance. I draw on homophily theory and the principle of similarity to explain the level of interorganizational trust embedded in key partner relationships of young, technology-based firms. Paper three (Chapter 5) examines the internationalization – performance relationship. More specifically, I examine to what extent going international contributes to organizational advantage and how the process of internationalization influences firm growth.

To test the hypotheses in each of these papers, I use a sample of young, technology-based firms in Flanders. The original sample was constructed during a large scale effort by our research team at Ghent University in the framework of the “Steunpunt Ondernemerschap,

Ondernemen en Innovatie”. We interviewed 210 firms during the first round of data collection in the period 2002 – 2003. In 2005, I performed a follow-up round of the data collection with the aim to 1) map the firm’s international expansion and 2) get information about the young, technology-based firm’s key partner network. In total, 131 young, technology-based firms were interviewed during this second round of data collection.

The first paper shows that learning from key partners about foreign markets and developing skills to internationalize through collaboration have a significant influence on the extent of internationalization of the young, technology-based firms. While previous research has mainly focused on experiential and congenital learning, we show that interorganizational learning is an important mechanism to spur the internationalization process. We further examine the interaction effects between interorganizational learning and experiential and congenital learning, respectively. This study shows that learning from partners substitutes for experiential learning; in other words, young, technology based firms can speed up international expansion by acquiring knowledge and developing skills through partners rather than going through the (slower) learning-by-doing process of experiential learning. Contrary to our predictions, greater absorptive capacity, captured by the amount of congenital learning, does not amplify the effect of interorganizational learning on the extent of internationalization. Further, organizations need enough resources in terms of both financial means and people to successfully pursue international expansion. Finally, the growth orientation of the young, technology-based firm does not have a significant effect on the extent of internationalization.

The second paper shows that domestic partners enjoy a higher level of interorganizational trust. Intuition suggests that higher similarity between two organizations results in a better understanding and thus a higher level of trust. In contrast, however, this study shows that both cultural and organizational similarity have an opposite effect: the more dissimilar two partners, the more trust embedded in the relationship. This study suggests that market opportunities, reputational effects, and external legitimacy offered by the partner through the relationship have an important influence on the level of

interorganizational trust in the context of young, technology-based firms. Also the longevity of the relationship stands in a positive relation with trust: the longer the relationship lasts, the more trust the firm has in this key partner. Further analysis indicates that the antecedents of trust differ between business partners (customers, suppliers, and commercial partners) and resource providers (technology partners and investors). More specifically, organizational similarity is not significant in the sample of business partners whereas it is positively associated with trust in the sample of resource providers.

The third paper shows that internationalization exerts a formative, positive influence on firm performance, expressed as growth in sales. Internationalization is attractive for entrepreneurial firms since it provides significant opportunities for learning, capability development and firm growth. The age at which a young, technology-based firm starts to internationalize proves to be an important determinant of firm growth. the older the firm at first time of internationalization, the more difficult it becomes for the firm to adapt because of organizational rigidities and inertia. This study also shows a complex relationship between the management team's prior working experience, internationalization and firm performance. On the one hand, the management team's shared domestic experience exercises a negative influence on sales growth subsequent to internationalization. On the other hand, prior collaboration experience moderates the effect of exposure to foreign markets positively because of transactive memory and better decision making capabilities. Finally, this study shows that higher entry mode intensity contributes to achieving higher sales growth. Higher entry modes provide the opportunity for frequent social interaction with partners and facilitate to transfer knowledge between organizations.

This dissertation makes several contributions to the current research on organizational learning theory, the internationalization literature, the literature on interorganizational relationships and the organizational capability literature. This dissertation advances our knowledge about internationalization, focusing on how different forms of organizational learning influence the extent of internationalization and how they interact to speed up the

internationalization process. Next, this work addresses an important caveat in the study of interorganizational relationships by focusing on the antecedents of interorganizational trust. Further, we extend the internationalization literature by examining the internationalization – performance relationship in the context of young, technology-based firms using an organizational capability perspective. Finally, this research offers several practical implications for entrepreneurs and policy makers. Entrepreneurs can get useful insights from this work regarding the factors that contribute to fast internationalization, which in turn has a strong impact on firm performance. This study can also help policy makers to develop support programs that provide entrepreneurs the tools to accelerate internationalization.

List of publications and conference presentations based on this doctoral research

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1 Introduction

Research has shown that export-oriented entrepreneurship enhances the competitiveness of start-ups and contributes to macro-economic growth. New and young firms enter the international arena to expand their customer base and to gain access to new knowledge and technologies (European Commission, 2004). Although internationalization is an appealing avenue to realize growth, the process of going internationalization is characterized by external and internal barriers that hinder fast international expansion (Leonidou, 2004). Therefore, the topic of international entrepreneurship received considerable attention from policy makers (e.g. see OECD 2004) and academics (e.g. see Strategic Entrepreneurship Journal, special issue on International Entrepreneurship, forthcoming). In my dissertation I study the internationalization of young firms using an organizational learning and social capital perspective. This dissertation consists of three different paper that address different aspects of the young firm internationalization.

1.1 Objectives

The objectives of my dissertation are threefold. First, I want to provide a better understanding of the factors that contribute to the internationalization of firms. Previous research has shown that young, technology-based firms do not follow the gradual, incremental internationalization as described in the process theory (Johanson & Vahlne, 1977). In contrast, these firms show rapid international expansion to multiple geographical markets using different types of entry modes. Although the international new venture theory provides some possible explanation by emphasizing the knowledge and skills of the entrepreneur (Oviatt and McDougall, 1994), we still lack a good understanding of how new and young firms achieve high degrees of internationalization. In the first paper, I employ an organizational learning perspective and introduce interorganizational learning as an important mechanism to explain rapid internationalization. Further, I explore how interorganizational learning interrelates to experiential learning (from the process theory) and congenital learning (from the international new venture theory).

The objective of the second paper builds on an important finding of paper one, namely the role of key partners in accelerating the internationalization process. The analysis of the first paper shows that interorganizational learning, i.e. learning from partners, substitutes for experiential learning. This implies that firms with little experiential learning can still achieve high levels of internationalization if they acquire knowledge and skills from their key partners. In the second paper, I focus on one of the key characteristics of interorganizational relationships: the level of trust embedded in the relationship (Nooteboom, 2002). Previous research has pointed out to the important role of interorganizational trust to reduce transaction costs (e.g. Gulati, 1995), to facilitate knowledge sharing (e.g. Inkpen and Tsang, 2005), and to enhance relationship performance (e.g. Zaheer et al, 1998). However, there is still little insight in the factors that influence the level of trust between two partners (Zaheer and Harris, 2006). I therefore examine how homophily, which employs the principle of “similarity” between two organizations, influences interorganizational trust.

Paper three relates to the first paper in the sense that it has internationalization of young, technology-based firms as the core theme. Paper one takes internationalization of the firm as an outcome whereas in the third paper I want to study how internationalization influences firm performance. Internationalization is a complex and not straight forward growth path for new and young firms. Entrepreneurs are confronted with numerous decisions when they start the internationalization process: e.g. which markets will we target and how will we serve local customers. The young, internationalizing firm will have to show great adaptability to adjust its behavior accordingly to the local context of foreign markets. Although there is some evidence of the effects of internationalization on firm performance (e.g. Zahra et al, 2000; Autio et al, 2000), these studies are cross-sectional and consequently provide little insights in how capability development influences outcomes of the firm’s international activities. Building on recent literature that links internationalization, capability development, and growth (Sapienza et al, 2006), I use a longitudinal study to examine the influence of internationalization on firm growth. More specifically, I study how the level of experiential learning influences growth and how this effect is moderated by age at entry, managerial experience, and entry modes.

1.2 Overview of the three studies

1.2.1 How learning from partners interact with experiential and congenital learning in young firm internationalization

Principal topic

The accumulation of foreign market knowledge and the development of skills to internationalize are central in the internationalization literature. The internationalization process theory uses the concept of experiential learning as a key mechanism to explain the gradual, incremental internationalization of firms (Johanson and Vahlne, 1977). The international new venture theory puts the entrepreneur at the central stage and posits that firm internationalization is facilitated and accelerated by the entrepreneur's knowledge base and skill set acquired during previous working experiences (Oviatt and McDougall, 1994). This line of research implicitly draws on the concept of congenital learning to address the internationalization of new firms (Huber, 1990). Only recently, researchers start to consider a third type of organizational learning in the context of firm internationalization: interorganizational learning (e.g. McDougall and Oviatt, 2005). Few studies have attempted to empirically examine the acquisition of knowledge and skills from partners in the context of firm internationalization. Furthermore, studies in the internationalization and broader organizational learning literature have tended to view different forms of learning in isolation, which results in limited insights how they relate (Holmqvist, 2003).

In the first paper, we apply organizational learning theory to get a richer understanding of how new ventures learn in an international and interorganizational context (Zahra, 2005). While previous research has mainly focused on experiential and congenital learning, we examine how learning from partners influences the extent of internationalization. We also shed new light on the relationship between different forms of organizational learning by examining how interorganizational learning interacts with experiential and congenital learning. More specifically, we provide theoretical mechanisms how interorganizational learning may substitute for experiential learning. Next, we draw on the concept of absorptive capacity (Cohen and Levinthal, 1990) to hypothesize the amplifying effect of congenital learning on interorganizational learning

Empirical strategy

The empirical context to test our hypothesis is a dataset of 114 young, technology-based firms based in Flanders. The dependent variable in this paper is the extent of internationalization: a composite variable of the scale and scope of internationalization (Preece et al, 1998). In contrast to previous research on firm internationalization (e.g. Sapienza et al, 2005), we do not consider structural attributes or resources that a firm commits to its international activities. For the purpose of this paper, we are primarily interested in the outcome of the firm's internationalization process. We propose a new operationalization of experiential learning and build on previous research to operationalize congenial learning (Carpenter et al, 2001) and learning about internationalization from partners (Lane and Lubatkin, 1998). We further control for the resource base of the firm at start-up (Heirman and Clarysse, 2005) and the firm's growth orientation (Autio et al, 2001). Also the industry sector in which the young, technology-based firm operates is included in the analysis. We employ multiple regression analysis to analyze the direct and interaction effects of experiential, congenital, and interorganizational learning on the extent of internationalization

1.2.2 Similarity breeds trust: interorganizational trust and the homophily principle

Principal topic

Different roles have been put forward how interorganizational trust positively influences the success of relationships between organizations. First, trust lowers transaction costs between two key partners. Gulati (1995) uses transaction cost economics in combination with sociological theory and finds that trust is an important, efficient control mechanism for governing partnerships. Trust "alleviates the fear that one's exchange partner will act opportunistically" (Bradbach and Eccles, 1989: 104). Second, trust influences the willingness of partners to share knowledge and information (Inkpen and Tsang, 2005). High trust between partners stimulates people to engage in social exchange and by doing so share more knowledge and information (Ring and Van de Ven, 1992). Third, trust between partners gives rise to an increase in relations-specific investments (Dyer, 1996b) that enhance productivity and rent generation (Dyer, 1996a). In their study of buyer-

supplier relationships, Zaheer et al (1998: 153) state that “interorganizational trust emerges as the overriding driver of exchange performance...”. Despite the widely acknowledged role of trust in the success of partnerships, few studies, however, have examined the factors that influence the level of interorganizational trust (Zaheer and Harris, 2006). Previous research found that the longevity of the relationship and the level of interaction exert an influence on trust. Prior relationship experience provides opportunities to learn about each other (Ring and Van de Ven, 1992) whereas higher frequency of interaction leads to a better shared understanding between organizations (Heide and Miner, 1992).

In this paper, we extend these views and apply homophily theory to examine how differences between two organizations may influence the level of interorganizational trust. The saying “birds of a feather flock together” captures the underlying principle of homophily theory: similarity breeds connection(McPherson et al, 2001). Although homophily theory received considerable attention at the individual level, only recently, scholars have used the “principle of similarity” at the organizational level (Kim and Higgins, 2007). Here, we examine how locational, cultural, and organizational context differences between two partners may have an influence on trust. Importantly, homophily theory addresses the differences between two partners without consideration of the relative position of each partner in the relationship. By introducing the direction of difference in organizational context, we extend homophily theory. Namely, we argue that relationships where the focal firm partners with more established firms enjoy higher levels of trust.

Empirical strategy

In order to study the influence of differences between two organizations on trust, we employ data on 297 relationships between key partners and young, technology-based firms. The partnerships were identified via a sample of 127 young, technology-based firms in Flanders. We focus on key partner relationship as they are found to represent an important source to build competitive advantage (e.g Yli-Renko et al, 2001). We identified the key partners, defined as “partners that have the most strategic importance

for the focal firm during the past three years, in the following categories: customers, suppliers, commercial partners, technology partners, and investors”. The dependent variable in this paper is the level of interorganizational trust (Zaheer et al, 1998). For each partner, we identified its location, calculated the cultural distance and rendered an operationalization of organizational context. Control variables in the model are the longevity of the relationship, the frequency of interaction, the level of commitment, and the type of partnership. We test our hypotheses using multiple regression analysis. We further perform a Chow test of our results between the subsample of business partners (customers, suppliers, and commercial partners) versus the subsample of resource providers (technology partners and investors).

1.2.3 Does internationalization influence organizational advantage? Internationalization, learning and growth in young, technology-based firms

Principal topic

Previous research in the internationalization literature has mainly focused on the outcomes of the internationalization process. More specifically, researchers have studied dependent variables such as the percentage of sales derived from foreign markets, the number of foreign markets entered, or the type of entry mode used to serve local customers. More recently, researchers started to examine the effects of internationalization on firm performance; there has been much less theorizing and empirical research on the link between internationalization and performance in small and medium-sized companies (Matthews and Zander, 2007). The results of the few studies on the internationalization – performance relationship are inconclusive: some studies show no relationship between going international and subsequent firm performance while others find positive, negative, or more complex associations. Also, the majority of these studies have not explicitly considered the effect of age at first internationalization on this relationship. This is an important gap, since most arguments for a capability-building effect of internationalization on SMEs emphasize the role of organizational age at the time of first international entry as a key factor influencing that relationship (Sapienza et al, 2006).

In the third paper of the dissertation, we build on the organizational capability literature to gain a better understanding of how internationalization contributes to organizational advantage. In the emerging tradition on international entrepreneurship, the process of internationalization itself is considered as a potentially valuable source of organizational capabilities that enables the internationalizing firm to create, rather than exploit, an organizational advantage, based on organizational capabilities developed during, rather than before, the process of internationalization (Sapienza et al, 2006) In this tradition, the internationalization process is viewed similarly as a “learning shock”(Pedersen and Petersen, 2004), but one which predominantly prompts the internationalizing firm to create new organizational capabilities, rather than adapting and modifying existing organizational capabilities. This is because young, entrepreneurial internationalizers have only a limited stock of organizational capabilities to start with, and they thus have little domestic package to unlearn (Autio et al., 2000). We therefore hypothesize that exposure to foreign markets, i.e. the time lapsed since export initiation, exerts a formative influence on firm performance. Further, we examine the direct effects of age at entry, shared domestic experience of the management team, and entry mode intensity on firm performance and build hypotheses how these variables interact with time since export initiation.

Empirical strategy

We collected panel information on 88 internationalizing young, technology-based firms located in Flanders. The panel is unbalanced: the number of observations per firm varies between one and thirteen. The dependent variable in the third paper is firm performance, operationalized as sales growth since this is a good indicator of the success the firm has achieved in foreign markets (Autio et al, 2000). The predictor variables are the time lapsed since export initiation, age at entry, the amount of shared domestic experience of the management team, and the intensity of the entry mode used to serve local customers. The model also includes the sales in the first year of internationalization as a common starting point for our growth measure. Further, we control for the industry sector in which the young, technology-based firm operates and for year fixed effects. To test the hypothesized relationships, we employed cross-sectional time series analysis by

generalized least-square regression for random effects. The Hausman test (1978) confirms our choice for random effects over a fixed effects model. We selected robust estimator since it provides a more conservative test of the hypotheses and one gets efficient and reliable estimates regardless of the presence of outliers (Zhou and Zhu, 2003).

1.3 Organization of the dissertation

In the second chapter of this dissertation I define the population and describe the sample. I also present descriptive statistics regarding the demographics, internationalization and key partner networks of the young, technology-based firms. Chapter 3 studies the extent of internationalization of young, technology-based firms and employs an organizational learning perspective. More specifically, I introduce interorganizational learning as an important mechanism for internationalization and examines how this type of learning interrelates to experiential and congenital learning. Chapter 4 brings more insights in the level of trust between the young, technology-based firms and their key partners. I draw on homophily theory to test how similarity between the two exchange partners influences the level of interorganizational trust. In Chapter 5, I link the internationalization of young, technology-based firms to firm performance. Using longitudinal data, I test how capabilities developed during the internationalization process influence firm performance. Finally, I highlight and summarize the main findings from the three papers in the dissertation in Chapter 6. I also present the most important implications for management science and practice and discuss the limitations of this study, which indicate directions for future research.

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2 Methods and Data

2.1 Population, sample frame and data

All the hypotheses developed in the three papers are tested on a sample of young, technology-based firms located in Flanders. These organizations are defined as “ventures that are founded between 1991 and 2002 which have their own R&D activities and develop and commercialize new products or services based on a proprietary technology or skill” (Heirman and Clarysse, 2004). The original sample was constructed during a large scale effort of our research group at Ghent University in the framework of the “Steunpunt Ondernemerschap, Ondernemen en Innovatie”. To identify these firms, we used four different databases to construct the sample frame: (1) a database of all firms founded between 1991 and 2002 in high-tech and medium-tech sectors, (2) a database of spin-offs from the different Flemish universities and public research organizations, (3) a database of all firms that received government R&D subsidies, and (4) a database of companies in the portfolios of venture capital investors. Through these different sources, 247 young, technology-based firms were identified of which the team interviewed 210 firms during the first round of data collection in the period 2002 – 2003¹. In this first round, data was collected during face-to-face interviews with the founder or a member of the top management team and the survey was inspired by the resource-based view (Barney, 1991).

In 2005, I performed a follow-up round of the data collection with the aim to 1) map the firm’s international expansion and 2) collect information about the young, technology-based firm’s key partner network. I developed a survey using organizational learning and social capital theory as frameworks, which you can find in appendix. I personally interviewed 131 young, technology-based firms about their internationalization and key partner network using a similar data collection technique as in the first round. By 2005, 22 companies were bankrupt and six were acquired by an incumbent firm. The 131 firms

¹ See Heirman and Clarysse (2004) for more details

interviewed represents a 72.0 percent response rate of the original sample interviewed during the first round of data collection².

2.2 Sample characteristics

In the following paragraphs, I first present the demographics of the sample firms and then discuss descriptive statistics regarding the key themes in this dissertation: the internationalization and key partner network of the young, technology-based firms.

2.2.1 Demographics: firm age, size and sector

Table 1 provides an overview of young, technology-based firms' age and size, expressed in employment and revenues. At the moment of data collection, the young, technology-based firms' age ranged from 3 to 16 years old with an average of 7.88 years old. The young, technology-based firms employ 2735 people in total and 21.37 full-time equivalents on average. As a group, these firms realize almost half a billion Euros in revenues. In 2004, the revenues vary from 0 to 100 million Euros with an average of 3.56 million. The young, technology-based firms are active in the following sectors: electronic equipment, biotechnology, microelectronics, ICT, and other high-tech sectors. We see that young, technology-based firms active in ICT are the largest group in the sample representing almost half of the sample (Table 2).

Table 1: Age and size of the young, technology-based firms at time of survey (2004)

	N	Mean	Sum	Stdev	Min	Max
Age (years)	131	7.88		3.22	3	16
Employment (FTE)	128	21.37	2735	42.75	0.5	299
Revenues (000 Euros)	128	3556.68	455242	10808.26	0	100000

² We performed non-parametric analysis test whether there are significant differences between the firms in the initial sample of 210 and the 131 firms in this study. The responding 131 firms are not significantly different in age, size at first year (measured in fulltime equivalents and revenues), and sector distribution as indicated by Kolgomorov-Smirnov two-sample tests (all p-levels are above .10).

Table 2: Young, technology-based firms by sector

	N	%
Electronic equipment	25	19.1
Biotechnology	16	12.2
Microelectronics	12	9.1
ICT	54	41.2
Others	24	18.3
Total	131	100

2.2.2 Internationalization: extent, geographical breadth and entry mode

In the sample, the vast majority of the firms have international activities (84.7 percent). To further examine the internationalization of the firms, I consider (1) the extent of internationalization, (2) the geographical scope, (3) the entry mode at the first year of international activity and today (i.e. in 2004). This way we gain some insights in the dynamics related to the internationalization process of young, technology-based firms. A widely used measure in internationalization literature is the percentage of sales that is realized abroad (e.g. Cadogan et al, 2002). It captures the export performance and effectiveness with which the firm has internationalized its activities. We see that the average extent of internationalization grew from 43.1% at first year of internationalization to almost 50% today. In a study of internationalization of Spanish SMEs, Acedo and Florin (2006) found that the average firm, with an age of 23 years old, realized 36.5 percent of its sales abroad. Qian (2002) found a similar percentage of foreign sales in a sample of emerging SMEs in the US. Preece et al (1998), on the other hand, examined the internationalization of Canadian young, technology-based firms and found that the average extent of internationalization ranged was 53 percent.

Table 3: Internationalization of the young, technology-based firms: first year of internationalization

	N	Mean	Stdev	Min	Max
Extent of internationalization (%)	122	43.10	39.83	0	100
Geographical scope (#)	110	1.43	1.09	0	7
Entry mode (%)	110				
• Direct exports		70			
• Distributor		25			
• Subsidiary		5			

A second key indicator of the international activities of firms is the number of geographical regions that a firm serves. Whereas the percentage of foreign sales represents the international intensity of the firm, the number of regions entered measures the global diversity of the firm's international activities (Preece et al, 1998). Operating globally poses unique challenges to firms as they face different institutional and cultural environments; these challenges are exacerbated for resource-constrained firms (Hordes et al, 1995). We asked each young, technology based to indicate whether they realized sales in one of the following major geographical regions: European Union, Rest of Europe, North America (Canada and US), South America, Far-East, Middle East, Africa, and Australia. Table 3 and Table 4 show that the average number of regions enter increased from 1.3 at first entry to more than two regions today. Other studies demonstrate that the number of geographical regions served by young firms ranges from 1.1 to more than three. For example, Bloodgood et al (1996) found that new high-potential US ventures, operationalized as firms that realized an IPO within five years after founding, entered on average 1.1 regions. Preece et al (1998) studied the global diversity of young, technology-based firms located in Canada and found that these firms are active in 2.93 regions. Shrader et al (2000) found that the average new international ventures had entered 2.9 foreign regions within their sixth year after founding. McNaughton (2003) reported an average of 3.1 regions served in his study of young, Canadian manufacturing firms. These studies used a similar classification for the different geographical markets.

Table 4: Internationalization of the young, technology-based firms: today

	N	Mean	Stdev	Min	Max
Extent of internationalization (%)	117	49.24	39.48	0	100
Geographical scope (#)	110	2.1	1.78	0	8
Entry mode (%)	110				
• Direct exports		38			
• Distributor		35			
• Subsidiary		27			

Next to the percentage of sales derived from foreign markets and the number of different regions entered, the way how foreign market are served is a third important indicator of a firm's international activities. Basically, firms can choose from a range of options

including direct exports, working with third parties (such as distributors and local sales agents), or wholly owned subsidiaries. Each entry mode is associated with a different level of commitment, control, and risk (Shrader et al, 2000). For example, direct exports only involves some additional administration whereas establishing a foreign subsidiary induces much higher costs and risks. However, high control entry modes offer more and better learning opportunities (Zahra et al, 2000). The selection of the appropriate entry mode is therefore an important decision. In this sample, we see that the vast majority of the young, technology-based firms opt for direct exports at first entry (63.6%). In contrast, however, there is a fast shift from low entry modes to more complex methods of targeting foreign markets such as setting up foreign subsidiaries (see Table 4). The usage of high entry modes of the young, technology-based firms in this sample is high in comparison to the ones reported in other studies. For example, Lindqvist (1991) found that more than 70 percent of Swedish young, technology-based firms preferred direct exports and sales intermediates as entry modes to enter foreign markets. In a three country study (Ireland, Finland, and Norway), Bell (1995) found that 70 percent of international sales transaction were carried out through direct exports or sales agents and distributors. Similarly, Burgel and Murray (2000) found that only three percent of the British young, technology-based firms entered foreign markets through wholly owned subsidiaries.

Further, I also examined the age at foreign market entry of the firm, which is found to have an important influence on the subsequent internationalization process of the firm (Autio et al, 2000). The age at entry exerts a strong imprinting effect on the learning capabilities of the firm. The older the firm, the more difficult it becomes to learn new, international business practices and utilize new, foreign market knowledge; two factors which are argued to be critical for successful internationalization in the international business literature. In our sample, the firm is on average less than three years old (mean = 2.78, stdev = 2.75) when it starts to internationalize activities. Further, almost 70 percent of the firms initiates its internationalization process within two years after start-up. In a sample of Finnish high-technology firms active in the electronic industry, Autio et al (2000) reported an average age at entry of less than six years old; just over 20 percent of

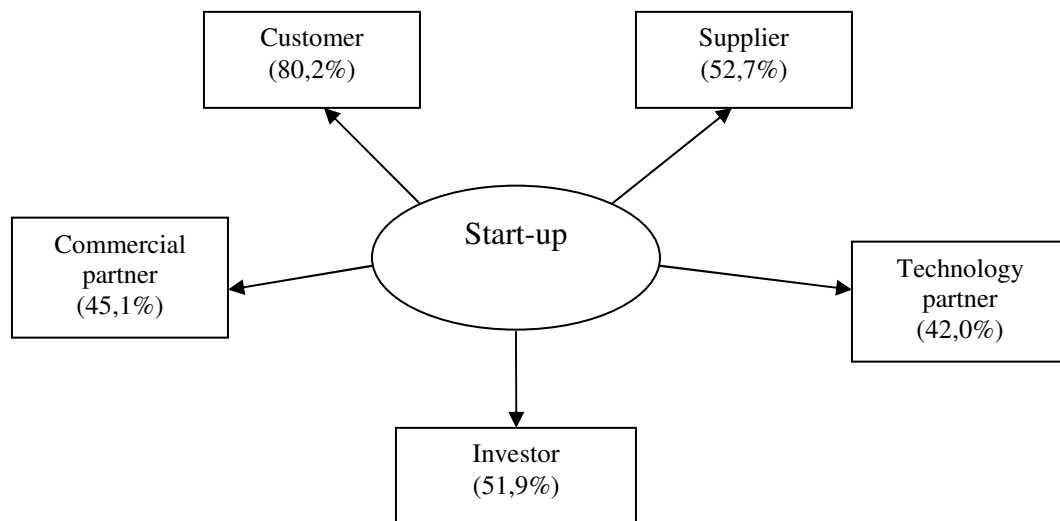
the sample firms initiated international activities within their first year of operations. The study of Shrader et al (2000) reports an average age at entry of 4.1 years in a sample of international new ventures; these firms were overwhelmingly high-technology firms. In contrast, Lu and Beamish (2006) found that the age at first internationalization in a sample of Japanese SMEs, operationalized as the moment of first foreign direct investment, was almost 36 years. Taken together, this indicates that young, technology-based firms operating in small open economies like Belgium tend to be “born global”, international new ventures.

2.2.3 Key partner network of the sample firms: type and proximity

Next to the concept of internationalization, an important part of my dissertation concerns the key partner networks of young, technology-based firms. Here I will discuss the types of partners active in the young, technology-based firm’s network, the number of partners in the network, and the geographical dispersion and presence of the key partners. Key partners are defined as “partners that had the most strategic importance for your company during the past three years”. Key partners are especially significant for young firms (Eisenhardt and Schoonhoven, 1996) because they represent an important source to build competitive advantage (Yli-Renko et al., 2001). In the context of internationalization, network relationships influence the internationalization process of small, knowledge-based firms with respect to initial and subsequent market selection and entry mode decision (Bell, 1995; Coviello and Munro, 1997). Network partners offer the opportunity for small, resource-constrained firms to access and leverage complementary knowledge and capabilities thereby driving international expansion (Hara and Kanai, 1994). A partner can be a customer, supplier, commercial partner, technology partner, or investor. The reasons for networking are diverse. One of the major reasons is the flow of incoming knowledge spillovers. This is especially true in the case of networking with suppliers and key technology partners. But this may also be important when collaborating with customers and commercial partners since they might offer and facilitate market expansion opportunities for the focal firm. The final network partner considered in the database is the investor, who provides the necessary funds to the firm.

Figure 1 shows that the majority (80.2%) of young, technology-based firms with a knowledge network have customers as a key partner. For these organizations, more than half of them choose for key investors (51.9%) and key suppliers (52.7%). Less than half of them have key commercial partners (45.1%) and key technology partners (42.0%) within their knowledge network. Using a Cochran Q test I found that the difference in the proportions in which partners are used in their knowledge networks by young, technology-based firms is highly significant ($p < .001$): the pattern of key customers deviates from the pattern of the other key partners. This implies that young, technology-based firms have customers significantly more than the other type of partners in their key partner network.

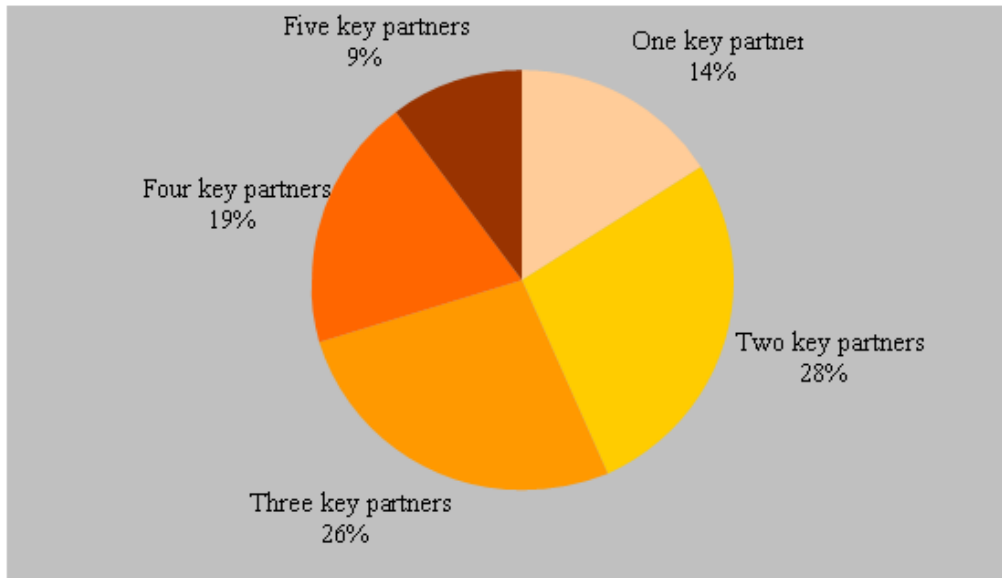
Figure 1: Different categories of key partners (N = 127)



Of course, each young, technology-based firm can be thought of having more than one partner. Indeed, in most cases (82%) the firms have multiple partners, as can be seen in Figure 2. Somewhat surprising, only a very small number (9%) of firms maintains key partner relationships with all five categories. A qualitative analysis shows that this group is very heterogeneous in terms of age, size, and technological domain. Only four companies have no key partner network. Three of the four companies are extremely small: employ one or two employees and realize almost no sales; these companies still exist formally but do not have any activities. The other company without a key partner network is extremely large. This company has more than one hundred employees on the

payroll and generates more than 100 million Euros. Given its large size and broad diversity of activities, it is difficult to build an intensive, strong relationship with a single partner. Also, the necessity and incentive to develop a key partnership with for example a particular customer is relatively low.

Figure 2: Number of partners in the key partner network of young, technology-based firms (N = 131)



A key concept in networking is geographical proximity. Geographical proximity refers to the spatial distance between two organizations participating actively in a relationship and plays an important role in stimulating interaction and performance (Amin and Wilkinson, 1999). Geographical concentration has a positive effect on knowledge spillovers between partners (Audretsch and Feldman, 1996). The table below shows the geographical dispersion of the headquarters of the key partners (Table 5). Here I consider the headquarters since this indicates where the decision power is concentrated. The “dispersion index” is obtained by dividing the number of countries in which key partners are to be found by the number of key partners, indicating to the geographical concentration of a type of key partner. The headquarters of the key partners are scattered over 24 countries. Key investors and key customers are the most concentrated in this context; whereas key suppliers and key commercial partners are the most dispersed.

Table 5: Partnership by type of key partners (N =127)

	Customer	Distributor	Commercial	Technology	Investor
# of partners	105	66	58	56	66
# of countries	14	15	13	10	7
Geographical dispersion	.133	.227	.224	.179	.106

I have classified the data along an alternative spatial level: Belgium, the main trade partners of Belgium (being the Netherlands, France, Germany and the United Kingdom), the United States of America, and the “Rest of the World”. I considered the United States of America as a single category due to its prominence as headquarters location. A detailed analysis shows that Belgium is the most important location of the partners’ headquarters. The main trade partners come in second place and also the partners with headquarters in the USA are popular. Table 6 further shows that key investors are mainly stemming from the same country as the young, technology-based firm. This indicates that the firms in the sample rely extensively on venture capital from Belgium as most important providers for external financial resources; international venture capital is almost absent. Similarly, the majority of the key technology partners have their headquarters in Belgium. Developing new technologies, products or services in collaboration with other companies or research organizations requires intensive communication. Brown and Eisenhardt (1995: 1108) describe the product development process as highly complex, which involves “cross-functional teams that brings in complementary experiences, information and skills. Therefore, young organizations that co-develop technologies, products or service with third parties will first look within their own region for potential technology partners. The co-location of technology partners decreases co-ordination costs and stimulates face-to-face communication

Table 6: Presence of the key partners' headquarters in Belgium, Trade Partners, the United States and the Rest of the World (N =127)

Type of key partner	Belgium	Trade Partners	USA	ROW
Customer	41.0	31.4	16.2	11.4
Supplier	36.4	18.2	30.3	15.2
Commercial	17.2	48.3	19.0	15.5
Technology	57.1	21.4	14.3	7.1
Investor	77.3	16.7	4.6	1.5

To gain access to foreign markets, most of the key commercial partners are to be found in the countries of the main trade partners (48.3%), the USA (19.0%) and in the “Rest of the World” (15.5%). Working together with foreign distributors offers the firm the opportunity to accelerate international expansion. Developing a market requires substantial financial and organizational investments. By working together with foreign commercial partners, the development no longer resides solely with the young, technology-based firm and thus the firm faces fewer risks. In addition, foreign commercial partners have a thorough knowledge of the local market. The companies are familiar with the local habits, ways of doing business, legislation, knowledge about potential customers... Through collaboration, the young, technology-based firm can benefit from the knowledge and expertise of foreign commercial partners. Somewhat unexpected, almost half of the key customers are Belgian companies (41%). We already pointed out that the young, technology-based firms in the sample generate an important part of their revenues abroad. Since these organizations operate in a limited local market, the growth in revenues must be realized abroad. Moreover, young, technology-based firms target niche markets which are international in nature (Heirman and Clarysse, 2004). Therefore, one would expect that the majority of key customers are foreign companies.

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3 How learning from partners interact with experiential and congenital learning in young firm internationalization

ABSTRACT

While extant research on the internationalization of young firms has focused on experiential learning by the firm and the founding team's prior experience (i.e., congenital learning) as important mechanisms to gain foreign market knowledge and internationalization capabilities, few studies have empirically examined the effects of interorganizational learning from network partners on internationalization. Further, the effects of the different learning mechanism have been largely studied in isolation of one another. In this paper, we examine both the direct and interactive effects of interorganizational learning from key exchange partners on the extent of internationalization of young, technology-based firms. Using data on 114 firms in Flanders, we find that interorganizational learning is positively associated with the firms' extent of internationalization, and that the level of experiential learning negatively moderates this relationship. That is, interorganizational learning matters more for less experienced firms, indicating that firms can substitute for a lack of experience by acquiring knowledge from their key partners. Contrary to our expectation, we do not find an amplification effect between interorganizational and congenital learning.

KEY WORDS: internationalization, young firms, organizational learning, interorganizational learning

How learning from partners interact with experiential and congenital learning in young firm internationalization

3.1 Introduction

As firms expand into foreign markets, they face considerable difficulties and costs arising from liabilities of foreignness (Hymer, 1976): explicit or implicit laws and customs give local firms an advantage, while foreign firms have to bear higher coordination and transportation costs, manage exchange rate risks, and suffer from a lack of familiarity with local networks and information sources (Zaheer, 1995). At the root of these liabilities of foreignness lies the firm's lack of foreign market knowledge and lack of internationalization skills and capabilities.

Both the internationalization process theory (Johanson and Vahlne, 1977, 1990) and the international new venture theory (Oviatt and McDougall, 1994; McDougall et al, 1994) have discussed how firms can accumulate foreign market knowledge and develop the skills and capabilities necessary for successful internationalization. The internationalization process theory, or stage model, argues that firms accumulate knowledge as they gradually expand their international activities; this results in an incremental pattern where firms tend to initiate internationalization later in their development and proceed to expand slowly. The international new venture theory, in contrast, notes that many young firms internationalize rapidly and posits that early internationalization is facilitated and accelerated by the founders' knowledge base acquired during previous work experiences (Oviatt and McDougall, 1994; Sapienza et al, 2006). The founders' cognitions, skills, and attitudes impact how they see and choose to exploit international opportunities, and rapid learning then shapes the structures and routines of the firm to support further internationalization (Autio et al, 2000; Zahra et al, 2004).

While this extant research has emphasized the roles of experiential learning by the firm and the congenital learning embodied in the founders' prior knowledge, only recently have researchers begun to focus on the role that learning from network partners may play in internationalization (Chetty and Blankenburg Holm, 2000; Johanson and Vahlne, 2003; Oviatt and McDougall 2005). Studies have indicated that network relationships can influence international entry and market selection decisions (McDougall et al., 1994), as well as accelerate the pace of international growth (Coviello and Munro 1997; Yli-Renko, Autio, and Tontti, 2002). Few studies, however, have attempted to explicitly examine the acquisition of knowledge and skills from partners in the context of internationalization. Such interorganizational learning is likely to be of particular relevance for young firms with limited internal resources and capabilities, and in technology-based industries, where knowledge creation and application are important to achieve competitive advantage (Eisenhardt and Schoonhoven 1990; Yli-Renko et al, 2001).

Prior research in both the internationalization literature and the organizational learning literature has tended to view the different learning mechanisms in isolation of one another, with little consideration of how the different mechanisms may interact. As pointed out by Holmqvist (2003: 101), intra-organizational (i.e., experiential) and interorganizational learning "live in partly separate worlds" with a lack of understanding of how the different forms of organizational learning relate to one another. Few theoretical arguments and little empirical evidence have been proposed to guide research on how different learning mechanisms interact to impact learning outcomes.

In this paper, we focus on both the direct and the interactive effects of interorganizational learning on the internationalization of young, technology-based firms. We propose that not only is learning from partners an important direct determinant of the firm's degree of internationalization, but that this type of learning also interacts with experiential and congenital learning to produce interaction effects that explain further variance in the extent of internationalization. We propose that learning from others may, in fact, *substitute* for experiential learning and consequently facilitate the internationalization

process for firms that lack experience. Underlying this moderating effect is the shift from knowledge exploration to exploitation that typically accompanies the accumulation of experience (Baum and Ingram, 1998; March, 1991; Audia and Greve, 2006). In contrast to this negative interaction effect, we posit an amplification effect between interorganizational learning and congenital learning. Specifically, we draw on the literature on absorptive capacity (Cohen and Levinthal, 1990; Lane and Lubatkin, 1998; Lane et al, 2006) to discuss how congenital learning may amplify the effects of interorganizational learning. We test our hypotheses using empirical data on 114 young, technology-based firms in Flanders.

By applying organizational learning theory to explain internationalization, we answer recent calls for a richer understanding of how new ventures learn in an international and interorganizational context (McDougall and Oviatt, 2005; Zahra, 2005). In so doing, we make two unique contributions to the literature. First, previous studies have separately looked at how the firm's experience (e.g., Eriksson et al, 1997; Erramilli, 1991) or founding team (e.g., Bloodgood et al, 1996; Reuber and Fischer, 1997) impact internationalization. We extend these existing views by empirically measuring learning from partners and by suggesting that such learning may interact with experiential and congenital learning. By shedding light on these interactive learning effects, we help to create new understanding of learning as a central facilitator of internationalization for young firms. Second, by explicating the interrelationship among different types of learning, we contribute to the broader discourse in the organizational learning literature. We offer theoretical consideration of the mechanisms underlying the interrelationships among learning types, and our context of internationalizing young, technology-based firms provides a unique opportunity for empirically studying these interactions.

3.2 Theoretical Framework and Hypotheses

Organizational Learning in the Established Internationalization Theories

The established internationalization literature has focused on two forms of organizational learning. First, experiential learning is a key mechanism underlying the staged

internationalization of firms in the internationalization process theory (Johanson and Vahlne, 1977). The notion of experiential learning is rooted in the behavioral theory of the firm, where an organization's behavior and actions are viewed as based on past activities and previously developed routines (Cyert and March, 1963; Levitt and March, 1988). That is, managers evaluate and make sense of the effects and organizational outcomes of past actions, and make decisions based on these experiential lessons, thereby changing the behavior of the company. When internationalizing, the company learns about the foreign markets it targets and accumulates knowledge about how to set up international activities. As a result, the perceived risks and costs related to internationalization decrease (Eriksson et al., 1997) and the company responds by committing more resources and changing its structures and routines to support further expansion. In other words, by taking incremental steps, the firm gradually accumulates foreign market knowledge and internationalization capabilities, which are used to further expand international activities (Barkema and Drogendijk, 2007; Johanson and Vahlne, 1977). In this way, experiential learning by the firm facilitates international expansion.

The second type of learning that has been shown to impact internationalization is congenital learning (Huber, 1991), which arises from the knowledge stock brought into a new firm through its founders' past experiences. The knowhow and information the founders have gained over time will have an important imprinting effect on the strategy and actions of the firm (Boeker, 1989). Previous actions and their outcomes are retained in the memory of the founders, resulting in deeply-held interpretations and generalizations of experiences (Kim, 1993); these mental models will significantly influence the actions of the new firm. Accordingly, the international new venture theory emphasises the importance of the decision maker in the initiation of a venture's internationalization process, arguing that internationally experienced people fuel the emergence of "born global" ventures, which compete on the international scene from an early age (Oviatt and McDougall, 1994). Founders with international experience will be more alert to opportunities in foreign markets and will have better capabilities for forming and executing internationalization strategies rapidly and successfully (Oviatt and

McDougall, 1994; Reuber and Fischer, 1997; Westhead et al, 2001). In this way, congenital learning facilitates international expansion.

While researchers in both of the above-mentioned literatures have recently begun to incorporate network perspectives (Johanson and Vahlne 2003; Oviatt and McDougall, 2005), to date few studies have explicitly examined the role that learning from partners plays in internationalization, and, to our knowledge, there has been no theoretical or empirical work conducted to examine how the different types of learning interact in the context of internationalization. In the following, we first discuss the mechanisms through which learning from key partners directly impacts internationalization by young, technology-based firms, and then develop hypotheses on how such interorganizational learning interacts with experiential and congenital learning.

Interorganizational Learning and New Venture Internationalization

Previous research has shown that organizations learn from other organizations, i.e., they can access others' knowledge bases through interaction and observation (Levitt and March, 1988; Huber, 1991). In this paper, we use the term "interorganizational learning" to encompass both (1) vicarious learning, or modeling, that takes place as an organization observes and imitates other organizations (Denrell, 2003; Huber, 1991), and (2) the transfer of knowledge that takes place through active exchange between organizations (Lane and Lubatkin, 1998). Further, we specifically focus on the interorganizational learning that takes place in young, technology-based firms' relationships with key partners, i.e., the most important customers, suppliers, commercialization/ technology partners, and investors. Prior research suggests that these key relationships are central in a firm's interorganizational learning, as they tend to involve higher levels of interaction and knowledge transfer and provide more strategically valuable knowledge (Dyer and Singh, 1998; Yli-Renko et al., 2001).

Interorganizational learning can yield both new knowledge and new capabilities (Lane and Lubatkin, 1998). First, a young, technology-based firm's business partners represent an important source of international market knowledge, i.e., knowledge specific to

particular foreign markets (Johansson and Vahlne, 1977). The partners are typically larger, more established firms active in multiple markets (Yli-Renko et al., 2001). Through interaction with them, a young, technology-based firm will be better able to select the highest-potential foreign markets, as well as anticipate and prepare for the conditions in those markets. The firm can acquire information about customer needs and market trends, which enable the firm to improve and enhance its products for foreign markets. In addition to acting as a direct source of information, exchange partners may also serve as bridges between the young, technology-based firm and other organizations (Tiwana, 2008; Elango and Pattnaik, 2007). For example, investors are known for their networking activities; through their connections, investors can mobilize additional knowledge and information about international markets, which would otherwise be beyond the firm's reach (Carpenter et al, 2003; Smith, 2001).

Second, key exchange partners can also help the young firm develop foreign entry capabilities. The partners, as established organizations, will have processes and procedures in place for managing exchange relationships and conducting cross-border activities. Through observation, interaction, and emulation, a young firm that establishes a relationship with such a partner can develop corresponding routines and processes (Lane and Lubatkin, 1998). Developing this "organizational complementarity" in operating systems and decision-making processes enables coordinated interorganizational action and facilitates further knowledge and capability acquisition from the partner (Dyer and Singh, 1998). Importantly, a young firm can subsequently leverage the new routines in other contexts, such as relationships with other exchange partners or other foreign markets.

Note that such acquisition of foreign market knowledge and internationalization capabilities can take place even if the partner organization is located in the young firm's home market. The young firm can, in essence, learn second-hand from the partner's international experiences. Investors, while typically located in proximity to the investee firm, have been shown to serve as a source of learning the "dos and don'ts" of internationalization, as they can convey to the young, technology-based firm their

experiences with implementing internationalization strategies in other portfolio companies (Carpenter et al., 2003; Gupta and Sapienza, 1992).

By contributing to the development of foreign market knowledge and internationalization capabilities, interorganizational learning can decrease the perceived uncertainty and risks of internationalization, leading to further commitment to international expansion and to increased perception of international opportunities (Johanson and Vahlne, 2003; 2006). Further, learning from partners is also likely to contribute to the effectiveness, or success, of a young firm's international activities, thus resulting in a greater degree of internationalization. In sum, we hypothesize that by exchanging information with, working on joint projects, or observing the activities of its key customers, suppliers, commercialization/technology partners, and investors, young firms can acquire foreign market knowledge and internationalization capabilities to enable them to grow their international activities:

Hypothesis 1. The greater the interorganizational learning from key partners, the greater will be the extent of internationalization of a young, technology-based firm.

Interorganizational Learning and Experiential Learning

Although much of the literature on interorganizational learning suggests that such learning will benefit all firms, it is likely that the impact of interorganizational learning for more experienced firms will differ from the impact for less experienced firms. In the following, we propose that firms taking initial steps in the international arena may benefit more from the knowledge and skills acquired through partners than more experienced firms. That is, the firm's level of experiential learning will moderate the impact of interorganizational learning on internationalization. We argue that the mechanism underlying this moderating effect is the shift from knowledge exploration to exploitation that typically accompanies the accumulation of experience (Baum and Ingram 1998; March 1991).

Young firms which have little or no experience in foreign markets will not have established routines or competencies for international activities, and will not have an existing internationalization knowledge base to exploit. The firms will therefore be highly open to exploratory learning, i.e., to experimentation, risk taking, and creating variety in experiences (Levinthal and March, 1993), as they investigate and exploit initial international opportunities. Interorganizational learning tends to favor such exploration (Dijksterhuis et al, 1999; Dyer and Singh 1998), enabling acquisition of a wide range of information and capabilities at a pace that is faster than if the firm were to internally develop the knowledge and capabilities (Grant and Baden-Fuller, 2004). In our context of young, technology-based firms operating in global, fast-paced industries, the firms will not usually have the time to develop all the necessary foreign market knowledge and internationalization capabilities through their own experience, but will instead seek external learning sources in order to rapidly climb up the initial learning curve of internationalization.

However, as the firms gain international experience, experiential learning is likely to diminish the impact of interorganizational learning on international expansion. Building on their international experience, firms learn to deploy their unique resources and organizational processes to better implement international market entry actions and coordinate cross-border business activities (Barkema et al, 1997; Chang, 1995; Martin and Salomon, 2003). The focus thus shifts from exploratory learning to exploiting existing knowledge and routines; broad experimentation with external knowledge gives way to increasingly deep application of internal knowledge. As a result, firms with experience in the international arena have less need to utilize other organizations' knowledge and skills and can instead focus on exploiting their firm-specific knowledge base. Note that we are not saying that firms cease to learn from their partners as they gain experience. We argue that the *impact* of this learning diminishes as the relative importance of exploitative learning increases.

Extant research offers some empirical evidence to support the notion that the influence from learning from others decreases as new organizations gain experience. Shaver et al

(1997) found that organizations with prior foreign direct investment experience gained relatively less from information spillovers created by other foreign entrants. Similarly, Argote et al (1990) found that new shipyards learned production skills from other shipyards before making their own investment, after which they primarily benefited from their own experience. These findings indicate that experiential and interorganizational learning tend to act as partial substitutes. When both mechanisms of learning are available, firms will tend to increasingly rely on the more relevant and cost-effective experiential learning over the relative uncertainty and randomness of interorganizational learning. Experiential learning will be better targeted to the specific foreign markets, processes, and products of the firm, and will thus have more of an impact on the firm's internationalization actions than learning from partners.

To summarize, we predict that young, technology-based firms with a low level of international experience can overcome a lack of foreign market knowledge and capabilities through learning from their key partners. The impact of interorganizational learning will be greater for these firms than for more experienced firms, which already have a stock of knowledge accumulated while doing business abroad. For firms with more international experience, the exploitation of existing routines and competencies will increasingly take over and diminish the impact of the more exploratory interorganizational learning. Thus, we hypothesize:

Hypothesis 2. The lower a young, technology-based firm's level of experiential learning, the greater will be the positive relationship between interorganizational learning and the extent of internationalization.

Interorganizational Learning and Congenital Learning

Based on the above discussion, one might expect that congenital learning and interorganizational learning would also act as substitutes, with interorganizational learning helping to compensate for a lack of prior managerial experience in the international arena and having less of an impact for firms with highly-experienced

founders. We do not expect this to be the case, however. Congenital learning reflects past, generalized knowledge from other contexts, and as such, it cannot substitute for the more recent and relevant situation-specific knowledge gained through the new firm's partner relationships (and, though not our focus in this paper, neither should it substitute for experiential learning by the new firm). Instead, we propose that a firm's level of congenital learning increases the firm's absorptive capacity, and thus *amplifies* the impact of interorganizational learning on internationalization: the more internationally experienced the founding team, the more benefit the firms will be able to derive from learning from its key partners.

We follow Cohen and Levinthal (1990: 128) in conceptualizing absorptive capacity as "the ability to evaluate and utilize outside knowledge." Absorptive capacity is considered to be largely a function of the level of prior related knowledge; a firm's existing knowledge base influences the degree to which it is able to identify, assimilate, and apply knowledge acquired from external sources (Cohen and Levinthal, 1990). Individual cognition is a critical driver of absorptive capacity, with the firm's members' individual and shared mental models driving what new knowledge is recognized, how it is transformed and combined, and how it is applied in the firm (Cohen and Levinthal, 1990; Lane et al., 2006). In young, technology-based firms, which, by definition, have relatively short operating histories and thus limited experiential knowledge stocks, the founders' experience prior to starting the firm will be a crucial component of the firms' existing knowledge base and thereby a key determinant of absorptive capacity.

Founders with little or no international experience will find it more difficult to process and interpret the external information acquired from network partners, hindering the effective application and utilization of the acquired information in the firm's international operations (Eriksson et al., 1997; Sapienza et al. 2006). With limited existing mental models to serve as frames of reference for evaluating new information, managers may be unable to efficiently extract the most relevant incoming knowledge and may instead suffer from information overload, focus their attention on marginal issues, and be ineffective in applying the new knowledge into action. For example, when learning how a

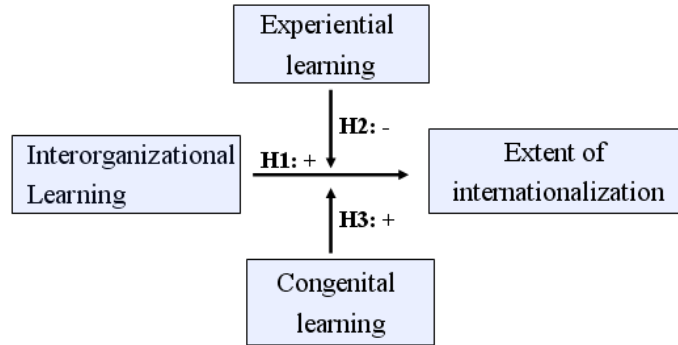
key customer manages its international supply chain, how can an entrepreneur decide whether or not to set up the young firm's operations based on this model if he/she has no prior experience with alternative models of international logistics? The result will be a slower, less significant influence of interorganizational learning on the firm's international expansion.

Internationally experienced founders, on the other hand, have a stock of prior knowledge to facilitate the identification and utilization of relevant externally generated knowledge (Kobrin, 1988). They have the capability to pick up relevant information acquired from partners and utilize their past experiences to interpret the new insights, resulting in a pattern of rapid application of interorganizational learning to facilitate and improve the young firm's international activities. For example, when learning through a distribution partner about regulatory changes in a foreign market, an internationally experienced founder will be able to quickly evaluate the implications of this information and take the appropriate action.

In this way, the founders' prior knowledge base impacts the breadth of external knowledge that the young firm understands, monitors, and applies. In exploratory learning, absorptive capacity determines "how far the firm can venture from its existing knowledge base" (Lane et al., 2006). Given the exploratory nature of interorganizational learning (Powell et al, 1996), we expect the processing and application of external knowledge by internationally experienced founding teams to more productive as compared with less experienced teams. Congenital learning may thus amplify the effects of interorganizational learning on the extent of internationalization:

Hypothesis 3. The greater a young, technology-based firm's level of congenital learning, the greater will be the positive relationship between interorganizational learning and the extent of internationalization.

Figure 3: Relationships between different types of organizational learning and the extent of internationalization



3.3 Data and methods

To test the hypotheses, we use a sample of young, technology-based firms in Flanders. Our sampling criteria defined the firms as less than 12 years old, conducting R&D activities, and developing and commercializing new products or services based upon a proprietary technology or skill. We focus on young firms because (1) they have been thought to be most affected by key external relationships (Eisenhardt and Schoonhoven, 1996), (2) rapid learning is important for the firms' development and growth (Thornhill and Amit, 2003), and (3) we wanted to capture the effects of congenital learning; it is likely that the effects of the founding team's international knowledge base will fade over time. Focusing on young firms rather than "new" firms, which are typically defined as less than six years old (e.g., Zahra et al, 2000), enables us to better examine the effects of experiential learning which accumulates over time. In fact, extant studies of experiential learning often encompass several decades of data (e.g., Baum and Ingram, 1998; Nadolska and Barkema, 2007). Further, the European context of our empirical study justifies a higher age limit than is typical in US-based studies of new firms. Early-stage equity funding is not as readily available in Europe as in the US (Lockett et al., 2002), with a particularly limited supply of venture capital in Belgium (Global Entrepreneurship Monitor, 2006), and young firms have limited opportunities to go public (Martin et al, 2002). Less available capital results in longer development times for high technology firms (Bürgel, 1999). To check for the potential effect that our 12-year age limit may

have on results, we also performed our analyses with the 10-year cutoff that has been used in prior research on young firms (e.g., Yli-Renko et al., 2001); the results of our hypothesis tests remained stable.

We focus on high-technology sectors because the dynamism in these sectors makes knowledge building and the development of capabilities particularly salient (Eisenhardt and Schoonhoven, 1990). By focusing on one region, the non-measured variance among firms resulting from unobserved environmental conditions is reduced. Flanders is a small, export-intensive economy located in the Northern part of Belgium and is considered to be an emerging high-tech region (Cantwell and Iammarino, 2001).

To identify the sample, four different databases of firms in Flanders were used: (1) a database of firms founded between 1991 and 2002 in high-tech and medium-tech sectors; (2) a database of spin-offs from the different Flemish universities and research institutes; (3) a database of all firms that received government R&D subsidies; and (4) a database of companies in the portfolios of venture capital investors. Of the 1003 firms initially identified, 247 met the definition of young, technology-based firm based on telephone screening. Of these firms, 210 were interviewed in the first round of data collection in 2002-2003 for an earlier study by one of the authors. The data for the present study were collected with structured face-to-face interviews with the founder/senior management of the firms in 2005. The founders or CEO's were targeted because they typically possess the most comprehensive knowledge on the organization's history, the firm's strategy, its processes and performance (Carter et al., 1994). To reduce the potential for common method bias, which may result from using a single respondent, we used previously validated measure for the different theoretical constructs (Spector, 1987). We further performed Harman's one factor test to check whether common method bias was present (Podsakoff and Organ, 1986). This test resulted in four factors with eigenvalues greater than one with the first factor accounting for 23% of the variance. Because a single factor did not occur and no factor accounted for a majority of variance, common method bias is not a problem in our data.

By 2005, 22 of the original firms had gone bankrupt and six had been acquired. Of the 182 independent firms, we interviewed 114, yielding a response rate of 63%. Responding firms were not significantly different in size (measured as number of employees) or age from non-respondents, as indicated by Kolgomorov-Smirnov two-sample tests. The size of the sample firms ranged from 1 to 299 employees at the end of 2004, with a mean of 15.7 and a median of seven. The majority of the companies (78%) had international activities. The median firm had 3 years of international sales, while its founding team had 2 years of international work experience before founding the company. The median firm generated 46% of its total sales abroad in 2004.

Multiple measurement items based on previous studies were used for each of the theoretical constructs. Statement-style items were measured on a Likert-scale from 1 = do not agree to 7 = completely agree. Cronbach alpha was used to determine overall construct reliability. In line with construct reliability requirements (Nunnally, 1967), all Cronbach alphas are greater than .60. Table 1 presents the descriptive statistics and correlations for the variables.

Table 7: Correlations and descriptive statistics of the independent variables in the model (N =114)

	1	2	3	4	5
1 Experiential learning					
2 Congenital learning	.16				
3 Interorganizational learning	.22*	.16			
4 Resource base at start-up	.19*	.28*	.15		
5 Growth orientation	.04	.14	.01	.16	
6 Industry sector					
• Electronic equipment (n = 22)	.05	-.08	.06	-.08	-.08
• Biotechnology (n = 14)	-.06	.02	.13	.14*	-.04
• Micro-electronics (n = 11)	.09	-.00	.03	.08	.08
• ICT (n = 46)	-.01	-.00	-.12	.02	.19*
• Other (n = 21)	-.05	.07	-.05	-.12	-.19*
Mean	15.27	8.65	7.32	.00	.00
Standard deviation	21.14	13.41	4.80	.85	.79
Min	0	0	0	-1.20	-1.24
Max	94	80	25	2.55	2.36

*Correlation is significant at the 0.05 level (2-tailed). Pearson correlation coefficients, Kendall's tau-b correlation coefficients for industry sector.

Dependent Variable

Appropriate measurement of the extent (or degree) of internationalization of a firm has been a central issue in international business research. While many studies have focused on particular aspects of the construct, internationalization is generally recognized as a multi-dimensional construct requiring multi-item measurement (Ramaswamy et al, 1996). Accordingly, we used three items to measure the firm's extent of internationalization: (1) foreign sales as a percentage of total sales; (2) absolute value of foreign sales; and (3) geographical scope of foreign sales. The first two items represent the *scale* of a firm's international output, whereas the third item captures the *geographic breadth* of the firm's international activities. These two dimensions are similar to the intensity and global diversity dimensions used by Preece et al (1998) as indicators of an early-stage technology-based firm's internationalization.

Some previous research has suggested that the extent of internationalization should also include a measure for the structural attribute of internationalization, consisting of the resources that a firm commits to its international activities (Sapienza et al, 2005; Sullivan, 1994). For the purpose of this paper, however, we are primarily concerned with measuring the effects of learning on the “output” of the internationalization process. Resource “inputs” to internationalization may be affected by numerous factors such as overall resource availability or a firm’s performance in the domestic market; such influences could obscure the learning effects that we are examining here. Therefore, we focus on output measures capturing the scale and scope of internationalization.

In measuring the geographic scope of a firm’s international activities, the commonly used approach is to weight geographical regions based on physical or cultural distance from the domestic market (e.g., Fischer and Reuber, 1997; Sapienza et al., 2005). Following precedent, we used cultural distance to capture the difference between the foreign and home markets (e.g., Barkema et al., 1997; Kogut and Singh, 1998). Given recent criticism on Hofstede’s original cultural distance framework, we apply the more recent framework developed by Schwartz (1994) to calculate cultural distances; this framework is gaining prominence in the literature (Tsui et al, 2007). Following previous research (Preece et al, 1998; Ronen and Shenkar, 1985), we categorized each firm’s foreign markets into the following geographical regions: European Union, Rest of Europe, North America, Latin America, Far East, Middle East, Africa, and Australia. We then calculated the cultural distance between Belgium and each region, and added the distance scores across the regions in which a firm had realized foreign sales.

To combine the three measurement items, the scores were standardized and averaged; higher scores indicate greater extent of internationalization of the young, technology-based firm. The Chronbach alpha for this measure is .84. In confirmatory factor analysis, the extent of internationalization comprises a single factor with an eigenvalue of 2.28 and factor loadings of .91 (foreign sales as percentage of total sales), .93 (absolute value of foreign sales) and .76 (geographic scope of sales).

Learning Variables

Experiential learning. As experiential learning takes place through the firm's experiences, and experiences accumulate over time, previous studies have typically used the number of years a company has had international sales to measure this type of learning (e.g., Cavusgil and Zou, 1994; Erramilli, 1991). However, this is a very rough measure: two firms that have had international sales for the same number of years may have accumulated vastly different amounts of experience depending on the number of regions they have entered and the types of entry modes used. To better capture this variation, we followed the logic from learning curve studies (see Argote, 1999, for a review), and sought to measure the *amount* of experience a firm has gained.

First, the type of entry mode used will have an influence on the amount of learning experiences: e.g., realizing foreign sales through direct exports requires very little interaction with the local environment, whereas firms with foreign subsidiaries will have a physical presence with daily activities in the foreign market. In line with previous studies (e.g., Calvet, 1981), we categorized entry modes into three levels according to the level of resource commitment required: 1= direct exports and licensing, 2= distributor agreements, and 3= foreign subsidiary. Second, research by Miller and Chen (1996) suggests that firms operating in different geographical markets can learn from each of them. For each geographic region (gr_i), we multiplied the years of international sales (YIS) with the type of entry mode (EM) used in that region. The experiential learning measure was then created by summing this number across the different regions:

$$\text{Experiential learning} = \sum_{gr=0}^i (YIS_{gr} * EM_{gr})$$

Congenital learning represents the international knowledge base of the firm at start-up, and was measured as the sum of the number of years of international work experience across all of the firm's founders. Previous studies have often used a dichotomous variable to measure the prior international work experience of the founders/management team (e.g., Bloodgood et al, 1997; Reuber and Fischer, 1997). As indicated by Cavusgil and

Zou (1994), however, the international knowledge of managers will be accumulated over time. Thus, individuals who have many years of international experience are likely to have more knowledge and skills related to internationalization than their less experienced counterparts. Following Carpenter et al. (2001), we use the number of years of international experience as a more accurate measure of the founding team's international knowledge base at start-up.

Interorganizational learning. To capture the extent of interorganizational learning, we focused on the relationships between the young, technology-based firms and their key partners. Building on Dyer and Singh (1998) and Yli-Renko et al. (2001), we asked each firm to identify their most important partners, specifically their key customer, supplier, partner for commercial activities (e.g., distributor), partner for technology development, and investor. We used two items to measure the extent to which the young, technology-based firm perceives that it has learned from each of its key partners in the context of internationalization: (1) Our company has acquired new or important information about foreign markets from this key partner, (2) This key partner has helped us to build our capabilities/skills towards internationalization. These items were developed based on Yli-Renko et al. (2001) and Lane and Lubatkin (1998). The Cronbach alphas for interorganizational learning through the different key partners are: .65 for key customer, .89 for key supplier, .80 for key commercial partner, .87 for key technology partner, and .82 for key investor. Next, we constructed a composite variable to measure the extent of overall interorganizational learning by adding the averaged scores for each of the five key partners. If a firm did not have a key partner in one or more of the categories, the learning for that partner category was zero.

Control Variables

Resource base at founding. The firm's growth and success depend on the characteristics of its resource base (Barney, 1991). Heirman and Clarysse (2005) studied to what extent the initial resource base has an impact on the future growth of young, technology-based firms and found that companies with more starting capital grow faster. Bloodgood et al. (1996) argued that the number of employees is an appropriate measure to represent a new

firm's resource-base. Because growing through internationalization requires the financial means to target and expand activities in a foreign market as well as the people who manage the activities abroad, we combined both starting capital and the number of full-time employees in the first year after founding to allow for more complete measurement of the construct ($\alpha = .63$).

Growth orientation. Several studies have shown that the growth orientation of the management team has an important impact on the firm's strategies and growth (e.g., Autere and Autio, 2000; Gundry and Welsch, 2001). Since internationalization is an important avenue to realize growth (Madsen and Servais, 1997), entrepreneurs who put a strong strategic emphasis on growth are more likely to rapidly increase their international sales. Similar to Autio et al. (2000), we use a three-item measure assessing the growth orientation of the company, combining a two-item measure of the absolute importance of growth with a relative measure of the importance of growth compared to four other key company goals. The following measurement items were used ($\alpha = .69$): (1) "Growing as rapidly as possible is the most important goal of this company," (2) "Aiming for high growth is not what drives this venture" (reverse coded), and (3) the number of points out of 100 allocated to "maximizing sales" vs. four other strategic goals (profitability, technical superiority, maximizing company value, sustainability).

Industry sector. The nature of the firm's business and its operating environment can influence its propensity to initiate and grow international sales (e.g., Cavusgil and Zou, 1994). Therefore, we include industry sector as a control variable in the model. We grouped our sample firms into five industry sectors: electronic equipment, biotechnology, micro-electronics, information and communications technology (ICT), and other.

3.4 Results

Table 2 presents the results of hypothesis tests using multiple regression analysis. In Model 1, we included only the control variables. In Model 2, we added the linear learning variables. Model 3 includes all the hypothesized variables including the interaction terms.

Before entering the interaction terms into the model, we first centered the variables and created the interaction terms in order to reduce multicollinearity (Akin and West, 1991). We examined the variation inflation factors in the models and found them all to be at accepted levels, ranging from 1.09 to 2.20. Since all variance inflation factors are well below 10 and the standard errors are stable across the different model, multicollinearity does not pose a problem (Neter et al, 1990).

Table 8: Linear regression estimates of extent of internationalization

	Model 1	Model 2	Model 3
Control variables			
Resource-base at start-up	.39*** (.091)	.19** (.063)	.20** (.064)
Growth orientation	.13 ⁺ (.093)	.12* (.062)	.09 (.063)
Electronic equipment	.06 (.11)	.07 (.077)	.05 (.078)
Biotechnology	-.04 (.11)	.06 (.074)	.02 (.075)
Micro-electronics	.05 (.11)	.06 (.070)	.02 (.071)
ICT	.00 (.13)	.01 (.086)	-.03 (.086)
Learning variables			
Experiential learning		.64*** (.063)	.68*** (.063)
Congenital learning		.13* (.061)	.12* (.064)
Interorganizational learning		.14* (.061)	.14* (.060)
Interaction terms			
Interorganizational learning x experiential learning			-.14* (.063)
Interorganizational learning x congenital learning			-.01 (.059)
Adjusted R ²	.13	.62	.63
F	3.95***	21.79***	18.87***
df (residual)	107	104	102
Range variance inflation factors	1.09 - 2.07	1.11 - 2.19	1.12 - 2.20

*** p ≤ .001, ** p ≤ .01, * p ≤ .05, ⁺ p ≤ .10; one-tailed

Standardized coefficients are reported. Standard errors are in parentheses

Hypothesis 1 predicted a positive direct relationship between interorganizational learning and the extent of internationalization. We find strong support for this hypothesis (beta = .14, p ≤ .05). Although not hypothesized here, consistent with the prior literature, we also

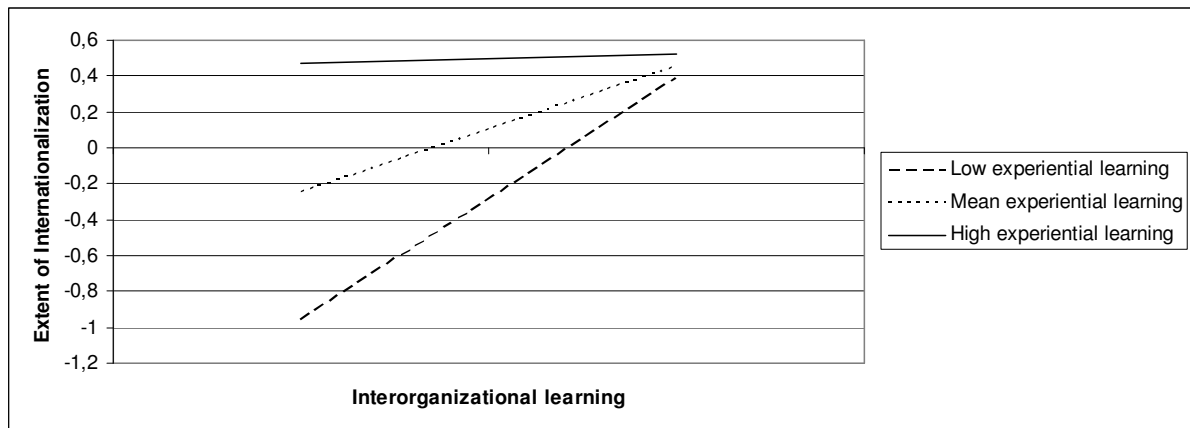
observe significant direct effects for experiential learning ($\beta = .64, p \leq .001$) and congenital learning ($\beta = .13, p \leq .05$).

Hypothesis 2 predicted a negative moderating effects for experiential learning on the relationship between interorganizational learning and the extent of internationalization. The interaction term experiential learning x interorganizational learning is negative and significant ($\beta = -.14, p \leq .05$), indicating that Hypothesis 2 is supported. The lower the level of experiential learning, the greater is the impact of interorganizational learning on internationalization.

In Hypothesis 3, we proposed that congenital learning would amplify the positive relationship between interorganizational learning and the extent of internationalization. The interaction term experiential learning x congenital learning is not significant ($\beta = -.01$); Hypothesis 3 is thus not supported. In control variable effects, we see that the resource-base at start-up is positively associated with internationalization, but the coefficients for growth orientation and the industry sectors are not significant.

Figures 1 illustrates the significant interaction effect found for Hypothesis 2. For Figure 1, we conducted a simple slope analysis to examine the impact of interorganizational learning on internationalization at different levels of experiential learning. We estimated three regression models using the mean value of experiential learning, one standard deviation above the mean, and one standard deviation below the mean. As indicated by the differences in the slopes of the regression curves in Figure 1, we see that the effect of interorganizational learning decreases as experiential learning increases. For the low level of experiential learning, there is a strong, positive relationship between interorganizational learning and the extent of internationalization ($\beta = .28, p \leq .001$). At the mean level of experiential learning, this relationship is less strong ($\beta = .14, p \leq .05$), and it becomes almost zero and not significant ($\beta = -.00, n.s.$) at high levels of experiential learning.

Figure 4: Illustration of the simple slope analysis of the interaction effect of interorganizational learning and experiential learning



3.5 Discussion

Internationalization is a complex, uncertain, and idiosyncratic process that poses significant challenges for any firm. For young firms, in technology-based industries in particular, the expansion into foreign markets is an especially important and intricate decision: early internationalization is increasingly a competitive necessity for such firms (Autio et al., 2000), but resource constraints and liabilities of newness exacerbate the challenges and risks involved in internationalization. Entering new operating environments means that the firm's existing knowledge and capabilities are often not applicable, and that the firm has to quickly develop new knowledge and capabilities in order to succeed in foreign markets (Barringer and Greening, 1998; McDougall and Oviatt, 1996). Prior research has emphasized the critical role that such learning plays in the internationalization process, and has suggested that young firms possess "learning advantages of newness" that enable them to quickly adapt to new situations and develop new capabilities (Autio et al., 2000).

While the extant internationalization literature has examined the roles that the firm's and its managers' experience play in the process of knowledge accumulation, numerous questions still remain regarding the antecedents, mechanisms, and outcomes of learning in the internationalization context (Zahra, 2005). Learning, like internationalization, is a

multifaceted construct, and research has just begun to uncover the complex, interrelated processes that take place at the intersection of these phenomena. Recent research has highlighted the need for a better understanding of a variety of issues, such as the tension between exploratory and exploitative learning (Zahra, 2005), the influence of network partners (Johanson and Vahlne 2003; Oviatt and McDougall, 2005), and the determinants of absorptive capacity for international new ventures (Zahra, 2005).

In this paper, we sought to contribute to these unanswered questions by focusing on how various forms of learning influence the extent of internationalization of young, technology-based firms. Our research model integrated insights from organizational learning theory, internationalization theories, and the literature on interorganizational relationships to develop hypotheses on the direct and interactive effects that interorganizational, experiential, and congenital learning have on internationalization.

Theoretical Implications and Contributions

Interorganizational Learning as a Facilitator of Internationalization. We found strong support for our hypothesis that learning from key partners can fuel the internationalization process of young, technology-based firms. This finding serves to empirically validate recent claims in the internationalization literature regarding the importance of network relationships. For example, Johanson and Vahlne (2003) suggested that a firm's relationships influence the choice of markets to enter and the entry modes used, and Oviatt and McDougall (2005) proposed that relationships accelerate young firms' internationalization by providing access to new knowledge, helping entrepreneurs to identify new market opportunities, and introducing the firm to local networks. By empirically measuring the acquisition of knowledge and capabilities in key partner relationships, our study serves to highlight interorganizational learning as a key mechanism through which such network influence occurs. Further, our finding contributes to the broader interorganizational relationship literature by extending the set of outcomes that have been studied. Previous studies have found that knowledge transfer and spillovers between partners can benefit, for example, new product development (Deeds and Hill, 1996; Yli-Renko et al., 2001), marketing skill development (Simonin,

1999), and sales cost efficiency (Yli-Renko et al., 2001); our finding indicates that such learning effects also hold when the focal outcome is the extent of internationalization.

Given this positive effect of interorganizational learning in internationalization, interesting questions arise as to whether such learning benefits some firms more than others, and how interorganizational learning fits into the overall “learning arsenal” available to firms. We addressed these issues by examining the interaction effects between interorganizational learning and experiential and congenital learning.

From Interorganizational Exploration to Experiential Exploitation: Moderating Effect of Experiential Learning. In our second hypothesis, we proposed that learning through partners can substitute for learning-by-doing. Our results provided support for this hypothesis by showing that the lower the level of experiential learning, the stronger the positive relationship between interorganizational learning and the extent of internationalization. This finding suggests that, at the early stages of internationalization, young, technology-based firms can speed up their international expansion by acquiring knowledge and developing skills through partners. As they accumulate international experience, experiential learning becomes more important and the firms become less dependent on second-hand information and imitation of other organizations’ skills. We proposed that underlying this dynamic is a shift from broad, exploratory learning to increasingly deep, exploitative learning; the former is better supported by external knowledge arising from interorganizational relationships, while the latter requires highly firm-specific knowledge best derived through experience.

Our finding that interorganizational learning can substitute for experiential learning extends the process theory view of internationalization, and helps to reconcile it with recent network perspectives. In their original framework, Johanson and Vahlne (1990) posited that first-hand experience about foreign markets drives subsequent international commitment and expansion. Consistent with this view, our data show a significant positive relationship between experiential learning and the extent of internationalization, supporting the basic proposition that more experience leads to more international

activities. However, our data do not reflect the slow, step-by-step process that the stage theory would predict. In line with others who have observed rapid internationalization patterns for young firms (Knight and Cavusgil, 2004; Yamakawa et al, 2008), the internationalization of our sample firms is relatively fast: with a median age of only 6 years, the majority of the firms in our sample had international activities, with a median of 40% of sales coming from abroad. By focusing on the interaction of experiential learning and interorganizational learning, our study helps to shed light on the question of how young firms without first-hand experience still manage to successfully internationalize early on. By showing that learning from partners is more influential at lower levels of experiential learning, we illustrate how young, technology-based firms are able to accumulate foreign market knowledge and develop internationalization skills and capabilities very rapidly. Interorganizational learning may, in fact, be one of the factors underlying the learning advantages of newness: learning from partners tends to be exploratory and flexible in nature, thus avoiding the “competency traps” and rigidity that experiential learning may induce in older firms (Levitt and March, 1988).

It is worth noting that to operationalize experiential learning, we chose to develop a new measure of how much experience a firm has accumulated in its internationalization process. The most commonly used measure for experiential learning in this context has been the number of years of international sales (Autio et al., 2000). We argued that this is too rough a measure, as it does not take into account the scope of a firm’s activities during the time it has been international. Using a more fine-grained measure should help resolve some of the inconsistencies in previous research regarding the relationship between the extent of internationalization and experiential learning (see Autio et al., 2000). Following the logic from original learning curve studies (see Argote, 1999, for a review), we sought to measure the *amount* of experience a firm has gained; we did this by combining measures for the length of international activity, the type of entry modes used, and the number of geographic regions entered. In so doing, we offered a more refined and accurate measure of the experiential learning construct in the context of internationalization.

Moderating Effect of Congenital Learning. In our third hypothesis, we proposed that congenital learning would amplify the effect of interorganizational learning on the extent of internationalization. We argued that the founders' prior international experience would increase a young firm's absorptive capacity and thus enable the firm to more effectively evaluate, assimilate, and apply the knowledge acquired through network partners. Contrary to our prediction, the interaction term coefficient between congenital and interorganizational learning was not significant. Though not hypothesized, our results do show a direct, positive effect of the founders' international knowledge base on the extent of internationalization. This is in line with previous studies on new venture internationalization (Reuber and Fischer, 1997), as well as with results from top management team research linking international experience with the firm's global strategic posture (Carpenter and Frederickson, 2001) and firm performance (Carpenter et al., 2001).

Recent research suggests two potential explanations for our non-significant finding regarding the amplifying effect of congenital learning. First, it may be that absorptive capacity is influenced more by prior experience with the *mechanism* through which the knowledge is identified and acquired than with the *content* of the knowledge (Eriksson and Chetty, 2003; Simonin, 1999). Although the extant internationalization literature has specifically focused on founders' or managers' prior *international* experience (Reuber and Fischer, 1997; Sapienza et al., 2006), it may be that in our interorganizational context, the congenital learning arising from the founders' prior experience working with network partners may be a more relevant determinant of absorptive capacity. Consistent with this possibility, Johanson and Vahlne (2003) have suggested that the development of business network relationships can be understood using the same experience-commitment framework as drives their internationalization process model. Second, it may be that other determinants of absorptive capacity are masking the effects of the founders' congenital knowledge base. In particular, the extent to which a firm has slack resources has been shown to influence the extent to which it is able to access and utilize external knowledge (Haunschild and Beckman 1998; Terlaak and King, 2007). We tested for this possibility by conducting an additional analysis using firm size as an operationalization of

absorptive capacity; organization size has been argued to be a suitable proxy for resource slack (Terlaak and King, 2007). The coefficient of the interaction term was positive indicating an amplifying effect. However, the interaction term between organizational size and interorganizational learning was not significant.

Taken together, our results of the direct and interaction effects of interorganizational learning provide evidence that interorganizational learning is useful for all internationalizing firms, but particularly so for firms that lack international experience. The higher relative importance of learning from partners at the early stages of internationalization suggests a temporal element to the phenomenon of internationalization which scholars like Jones and Coviello (2005) have recently emphasized and which is still relatively unstudied (Zahra, 2005). Further, this finding may have implications beyond the context of internationalization: the same substitution dynamic between interorganizational and experiential learning might be potentially found in, e.g., domestic growth, acquisitions, and new product development. Our non-significant finding regarding the interaction between congenital and interorganizational learning indicates that a lack of prior international experience by a firm's founders does not dampen interorganizational learning effects. It does, however, raise interesting questions as to whether other types of founder experience might play a role. Collectively, our results help to illuminate the relative roles of firm-internal and external learning mechanisms. While some prior research has examined both internal and external sources of information in internationalization (Yli-Renko et al., 2002), the current study represents, to our knowledge, the first attempt to examine the interrelationships among different learning mechanisms in this context.

Control Variable Effects. The effects of the control variables also merit some discussion. First, our results showed a strong, positive relationship between the level of starting resources and the extent of internationalization. Findings from previous research have remained inconclusive on whether the stock of available resources has an impact on the company's ability to unfold an internationalization strategy. For example, Cooper and Kleinschmidt (1985) found a negative relationship between organizational size and

export growth where others (e.g., Czinkoza and Wesley, 1983) found no significant relationship between size and the degree of internationalization. Our finding indicates that young firms which have a larger resource-base at founding do have a higher extent of internationalization; a firm needs enough resources in terms of both financial means and people to successfully pursue international expansion.

The growth orientation of the firm had no significant influence on the extent of internationalization. This finding suggests that it may not be accurate to conceive of internationalization as purely a growth strategy. At least in small, open economies like Flanders, young, technology-based firms must internationalize, regardless of whether the firm has growth as a primary objective or not. We found no significant impact of the industry sector on the young, technology-based firms' extent of internationalization, even though extant research has shown that the level of globalization of industries differs, and that these differences between industries influence the firm's strategy towards internationalization and consequently its extent of internationalization (Makhija et al, 1997; Wiersema and Bowen , 2008). Our non-significant finding may be due to the fact that all of the firms in our sample operate in technology-based industries that are global in nature, with a limited potential customer base in Belgium.

3.6 Limitations and Conclusion

As every empirical piece, our study is not without limitations, thereby providing avenues for future research. First, our dataset is comprised of young, technology-based firms located in Flanders. Although this has the positive effect of reducing non-measured variance, it raises the question of whether our results would hold in other environmental settings and for other types of firms. Flanders, as a region, is characterized by a very open economy geared towards exporting, and young, technology-based firms are R&D-intensive companies typically competing in dynamic markets. Conducting similar studies in different regions (e.g., small versus large domestic markets) and industries would contribute to our understanding of the generalizability of the findings.

Second, given the cross-sectional nature of our data, we cannot provide insights into the causal dynamics of learning and internationalization. The research design also does not allow for testing for changes in the composition and the role of the company's key partners at different phases of the internationalization process. For example, to what extent does the relationship with a key partner influence the initial decision to start international activities vs. subsequent growth? Future longitudinal studies could shed light on the temporal dynamics of learning and internationalization.

Third, by focusing solely on the key partners of the company we examined a limited subset of the firm's relationships, ignoring the effects that the size of the firm's network may have on learning outcomes. By looking at the comprehensive network of customers, suppliers, commercial partners, technology partners, and investors, future studies could provide further insights into how the breadth of learning efforts influences internationalization; such comprehensive approaches are, of course, very difficult to execute.

Lastly, while beyond the scope of the current study, additional areas for future research include examining the conditions under which interorganizational learning occurs and explicating the processes through which this learning takes place. Factors such as the knowledge base and location of the partner organization, the relative absorptive capacity of the dyad (Lane and Lubatkin, 1998), and the social capital embedded in interorganizational relationships could be some of the factors to be included in future research. In light of our earlier discussion regarding the non-significant absorptive capacity finding, future empirical work could examine the alternative approaches in operationalizing the concept. Further, qualitative methodologies would allow for further theory development about how, why, and what firms learn from each other. The context of internationalization provides rich opportunities for further examining how knowledge is transferred and capabilities internalized through interorganizational relationships.

3.7 References

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4 Similarity breeds trust? Interorganizational trust and the homophily principle

ABSTRACT

This paper examines the antecedents of trust between young, technology-based firms and their key partners. More specifically, using homophily as a theoretical rationale, we develop several hypotheses about how similarity between two organizations influences the level of interorganizational trust embedded in the relationship between those organizations. Using a dataset of 297 relationships with key partners maintained by 123 young, technology-based firms, we find that trust is highest between two partners of within the same country. However, in international relationships, trust increases when cultural distance enlarges. Contrary to expectations, organizational dissimilarity between two partners is found to be positively associated with trust. Further we found that trust is dependent on the direction of organizational dissimilarity and that the factors influencing trust are different between relationships with business partners and relationships with resource providers.

KEY WORDS: interorganizational relationships, trust, homophily theory, young firms

Similarity breeds trust? Interorganizational trust and the homophily principle

4.1 Introduction

Trust is a relevant and popular research topic in many disciplines within social science (Uslaner, 2008). The role of *trust* received therefore considerable attention in recent research on alliances and partnerships and is found to be an important factor affecting the success of long-term relationships (Nooteboom, 2002). High levels of trust between two organizations have a positive influence on the partnership via the reduction of transaction costs (e.g. Gulati, 1995; Bradbach and Eccles, 1989), the stimulation of partners to share deep, tacit knowledge (Inkpen and Tsang, 2005; Ring and Van de Ven, 1992), and the enhancement of relationship productivity and rent generation (Dyer, 1998). In their study of buyer-supplier relationships, Zaheer et al (1998: 153) state that “interorganizational trust emerges as the overriding driver of exchange performance...”. Extant literature has mainly looked at the relationship between trust and organizational governance and has shown the positive effect of trust on different relationship outcomes. Despite the widely accepted role which trust plays in the success of partnerships, few studies, however, have examined the factors that influence the level of interorganizational trust embedded in relationships (Zaheer and Harris, 2006).

In this paper, we address this caveat and examine how similarity between partners influences the level of interorganizational trust. The concept of similarity between two persons or organizations plays a central role in homophily theory (Lazarsfeld and Merton, 1954). The more similar exchange partners are, the more they are likely to understand each other. Contrary, dissimilarity or differences between exchange partners are sources of misunderstanding that could lead to frictions. These frictions induce a feeling of discomfort with the relationship and may even encourage the partner to terminate the relationship. Three differences are central to our story: locational differences in terms of domestic versus international; cultural differences in terms of a variety of key dimensions; and organizational differences in terms of organizational context. By

highlighting the link between homophily and trust, we seek to contribute to a further understanding of the antecedents of interorganizational trust.

Our model posits that increased differences between key partners will have a negative influence on the level of trust embedded in the relationship. First, we propose that the level of trust will be higher between two domestic partners. Further, we argue that the level of interorganizational trust decreases with increasing cultural distance. Next, we propose that organizational similarity between two partners exercises a positive influence on trust. We test these hypotheses using a sample of 297 relationships between young, technology-based firms located in Flanders (the Northern part of Belgium) and its key partners wherever they are located. Key partners are defined as “partners that had the most strategic importance for your company during the past three years”. Key partners are especially significant for young firms (Eisenhardt and Schoonhoven, 1996) because they represent an important source to build competitive advantage (Yli-Renko et al., 2001). A partner can be a customer, supplier, commercial partner, technology partner, and an investor. Given the important influence of trust on relationship outcomes, forming trust-based relationships with key partners are therefore a vital element for the development of young, technology-based firms.

Using the homophily principle, we bring more insights in the meaning of trust between partners in the context of resource deficient young, technology-based firms. By doing so, we make several contributions to the literature. First, we contribute to the limited body of empirical research on interorganizational trust by offering insights in the underlying factors that may influence the level of trust. Second, we contribute to homophily theory. The unit of analysis in the majority of studies using homophily as a theoretical framework remains at the individual level; whereas we focus on the effect of differences between two partners at the organizational level. Third, we extend the literature on cultural immersion by providing empirical evidence of higher trust levels in domestic versus international partnerships. Through cultural immersion, domestic partners share a deeply rooted background that results in a spontaneous connection. Fourth, we answer recent calls to include multinational interorganizational relationships in studies on trust

by introducing the concept of cultural distance to the study of trust. (Seppänen et al, 2007). The remainder of this paper is structured as follows. First, we develop hypotheses that link differences in cultural background and organizational context between young, technology-based firms and its key partners with the level of interorganizational trust. Second, we describe the research setting, data and methods to test our hypotheses and present the empirical results. The last section of this paper discusses the results and limitations of our study and offers suggestions for future research.

4.2 Trust, interorganizational relationships, and homophily

Trust appears in multiple conceptualizations in the organizational studies literature. For example, scholars have defined as trust “a willingness to rely on an key partner in whom one has confidence” (Moorman et al, 1992: 315), “an expectation held by an agent that its trading partner will behave in a mutually acceptable manner (Sako and Helper, 1998: 388), or “as the expectation held by one firm that another will not exploit its vulnerabilities when faced with the opportunity to do so” (Kirshnan et al, 2006: 895). These definitions capture two critical components of trust: 1) trust is an expectation about a key partner’s trustworthiness and 2) trust involves a situation of vulnerability and/or uncertainty (Rousseau et al., 1998). The first component, expectation, is routed in social exchange theory whereas the second component refers to transaction cost economics and opportunistic behavior (Holmstrom, 1982). Although scholars have treated trust as a multi-dimensional construct, a one-dimensional view of trust at the organizational level is appropriate (Jeffries and Reed, 2000). In this paper, we adopt the definition – and operationalization – of Zaheer et al. (1998) who conceptualize trust as a collective view towards another organization. These authors define interorganizational trust as “the expectation that a partner 1) can be relied on to fulfill obligations; 2) will behave in a predictable manner; and 3) will act and negotiate fairly when the possibility for opportunisms is present” (Zaheer et al., 1998: 143). This definition subscribes the two critical components of trust but treats trust as an one-dimensional measure in the operationalization.

Rooted in social exchange theory, studies on interorganizational alliances and partnerships have shown that the longevity of the relationship and interaction between two partners exert a positive influence on the level of trust embedded in the relationship. For example, Gulati (1995) shows that alliance partners with repeated interactions are less likely to form an equity-based alliance. Through prior relationship experience, organizations have the opportunity to learn about each other and develop trust (Ring and Van de Ven, 1992). Young-Ybarra and Wiersema (1999) found that the level and quality of interaction lead to trust in a sample of strategic alliances in the IT sector. Heide and Miner (1992) found similar support for the interaction hypothesis by showing that frequency of interaction has a positive influence on shared problem solving and flexibility in the relationship; both concepts point out to a certain level of trust between parties (Zaheer and Harris, 2006). Through communication, organizations share formal and informal information such as values, goals and objectives which lead to a shared understanding between parties.

In the following paragraphs, we extend these views and apply homophily theory to build hypotheses how differences on several dimensions between young, technology-based firm and its partners may influence the level of interorganizational trust embedded in the relationship. The saying “birds of a feather flock together” captures the underlying principle of homophily theory: similarity breeds connection (McPherson et al, 2001). Rooted in social network theory, homophily theory argues that similarity between people or organizations facilitates linkages. Prior research on homophily theory mainly examined the influence of different characteristics such as race, gender, ethnicity, age and religion on relationship outcomes (see McPherson et al., 2001 for an overview). The central idea is that people who are similar in socio-demographic characteristics are more likely to interact with each other than people who are dissimilar.

This hypothesis has been tested in a variety of settings. For instance, Reuf et al. (2003) have shown that homophily explained how entrepreneurial teams come together. Wiersma and Bird (1993) tested the influence of different demographic characteristics of Japanese top management team members on team turnover. They found that

heterogeneity among top management team members resulted in higher turnover rates, providing support for the homophily principle. In a study of top management teams of US and Irish high-technology firms, Knight et al (1999) found that demographic diversity among top management team members increased interpersonal frictions and exercised a negative effect on agreement seeking and achieving strategic consensus. The central idea in these studies is that similarity between team members result in better fit which facilitates communication, cooperation, and a shared understanding (Hambrick and Mason, 1984)

Although homophily theory received considerable attention at the individual level, only recently, scholars have started to test the “principle of similarity” at the organizational level (Kim and Higgins, 2007). In a study of network linkages among youth service agencies, Wholey and Huonker (1993) found strong support for the predictions based on homophily theory by showing that similar agencies are more likely to develop linkages. Similar support for homophily at the organizational level was found in a study of network relationships in the investment banking industry (Li and Berta, 2002): high status banks are more likely to transact with other high-status banks. Kim and Higgins (2007) showed that previous prominent affiliations of upper echelon members have a positive effect on alliance formation with prominent firms active in the biotechnology industry. Saxton (1997) found mixed support for the homophily principle: strategic similarity between partners was positively associated with alliance outcome, but organizational similarity exercised a negative influence on alliance outcome.

There are three main shortcomings that we identify in the above cited studies with respect to the homophily hypothesis: first, the principle of similarity is multidimensional. Studies on interorganizational relationship usually consider one dimensional of the homophily construct. Second, the homophily literature does not only predict the choice of partners, but implicitly also makes a prediction about the outcome of that relationship. Third, measuring the immediate outcome of a relationship at the level of an organization implies that the dependent variable can be linked easily to the predictor. Alliance outcomes in terms of success or perceived success such as measured by Saxton (1997) are influenced

by many different factor among which homophily is difficult if not impossible to isolate. In this paper, we address these shortcomings by a) measuring conceptually different items of the construct “homophily”, b) analyzing the impact of homophily on a clear dependent variable that matters, i.e. trust and c) using a dependent variable which is hypothesized to be an antecedent of potential alliance success rather than success itself.

4.3 Hypotheses

First, we hypothesize that the level of trust between domestic partners will be higher. When collaborating with an international partner, we further hypothesize that the level of interorganizational trust will be dependent on the cultural distance between the two organizations, i.e. greater cultural distance will exercise a negative influence on trust. Third, we link organizational similarity between partners with trust and hypothesize that greater organizational similarity will positively influence the level of interorganizational trust.

Organizations are established in a national environment with specific structures, values and believes, i.e. the national culture. These attributes of the environment influence how people, groups, organizations, and institutions behave and interact (Hofstede, 2001). The literature on cultural immersion posits that people, who live mostly in a single societal culture, develop shared schemas. This immersion process occurs unconscious; i.e. over time norms and values are embedded in the mind and behavior of people. As a consequence, people become less able to consider less familiar paths (Hanges et al., 2000). These effects of cultural immersion are reflected in the organizations and structures within that society (Parkhe, 1993).

Cultural values and beliefs, which are stable over time (Barkema and Vermeulen, 1997), are therefore deeply rooted in the functioning of organizations. They exercise a strong influence on how the environment is perceived. Previous research shows that firms with different national backgrounds have distinct management styles, different temporal orientation and other attitudes towards setting up and governing interorganizational

relationships (e.g. Perlmutter and Heenan, 1986). Contrary to international partnerships, domestic partnerships consist of organizations that have undergone the same cultural immersion process. The cultural correspondence between two domestic partners breeds a spontaneous connection whereas two partners with different backgrounds have to clear the cultural hurdle. Consequently, we can state that the mechanism of homomphily plays a role in the selection of partners in the same country. This implies that we expect that the level of interorganizational trust will be higher in the case of domestic partnerships as compared to international partnerships.

Hypothesis 1: The level of trust will be higher in domestic partnerships, i.e. collaborations between organizations in the same country than in international partnerships, i.e. collaborations between organizations that belong to different countries.

International partnerships imply collaborations between parties located in different countries. However, not every culture is different in the same way from the other. Research shows that cultures differ along several dimensions: power distance, masculinity, individualism, uncertainty avoidance, and long-term orientation (Hofstede, 1980, 1991). A central assumption of this literature is that some cultures are more similar than others. The first dimension, power distance, measures the extent to which individuals and institutions expect and accept that power is distributed unequally. Masculinity refers to the distribution of roles between the genders which is another fundamental issue for any society to which a range of solutions are found. The level of individualism, which opposes collectivism, measures the degree to which ties between individuals or organizations exists, ranging from loose to tight. The uncertainty avoidance index measures the society's tolerance towards uncertainty and ambiguity. Long-term orientation captures the extent to which people have a future-oriented vision.

The concept of cultural distance; which is a combination of these different dimensions, refers to differences in the “system of values and norms that are shared among a group of people and that when taken together constitute a design for living” (Hill, 1997: 67). The

concept has often been used in the study of joint ventures between partners stemming from different cultural backgrounds (e.g. Barkema and Vermeulen, 1997). Cultural differences give rise to tensions between partners, which have a negative influence on the chance of survival of the international joint venture. The acculturation between partners is function of the cultural distance. Barkema et al (1996) show that familiarization with other national cultures becomes more difficult as the cultural distance between the home and host country increases. Cultural differences are sources of misunderstanding and suspicion that give rise to tensions and cultural frictions which, in turn, influence the level of trust established between partners. In line with the homophily theory, we therefore formulate the following hypothesis:

Hypothesis 2: Smaller differences or greater similarity in the home culture of the organizations that collaborate will have a positive influence on the level of trust in the relationship

Next to differences in cultural background between two organizations, we also expect that the organizational similarity between partners may have an influence on the level of trust residing in the relationship. A historic, cumulative process shapes the way firms interpret and react to the external world (Wuyts et al., 2005). Different organizational characteristics mirror the presence of different mental models, organizational routines and management styles. Organizational similarity, or the match between organization in terms of organizational processes such as operating styles and administrative systems, facilitates cooperation between two organizations (Jemison and Sitkin, 1986). It provides a common framework for coordination and interaction that functions as a lubricant for the transmission and sharing of tacit knowledge.

Similarity increases comprehensibility between two organizations (Nooteboom, 2000) as they have similar perceptions, interpretations and evaluations of the environment in which they operate. Consequently, similar firms will understand each other actions and expressions more easily; sharing a reference frame that smoothens communication. In contrast, when two organizations are dissimilar, interaction becomes more difficult,

which hinders effective information exchange and learning about one another (Pfeffer, 1983). The collaboration will be characterized by relational frictions, which may limit the partners' willingness to be open. As a result, the level of accumulated knowledge will be lower and the partners will not have sufficiently developed a common framework of understanding each other. Therefore, organizational similarity between partners reduces different barriers that exercise a negative influence on the collaboration between the two organizations. As a result, this will lead to a more trustworthy relationship:

Hypothesis 3: Greater organizational similarity between organizations will have a positive influence on the level of trust in the relationship.

Homophily theory addresses the difference between two exchange partner without the consideration of the relative position of each organization (or person) in the relationship. In the next hypothesis, we extend homophily theory by introducing the direction of difference in organizational context. This direction captures the relative position of the focal firm to the partner organization. We focus on the organization's level of legitimacy and its predictability of behavior to build our argument. Young and small firms suffer from the liability of newness and smallness, which refer to the different risks of dying of organizations during its life span (Stinchcombe, 1965) and reflect the difficulties small firms encounter to secure critical resources such as staff and capital (Aldrich and Auster, 1986). In contrast to more established firms, young firms have limited resources, capabilities and linkages to other firms, which hinders firm development. Gaining external legitimacy through building supportive exchange relationships is especially important for organizations that have ambiguous technologies and unclear goals (DiMaggio and Powell, 1983) and facilitates resource accumulation and the establishment of subsequent relationships (Singh et al., 1986).

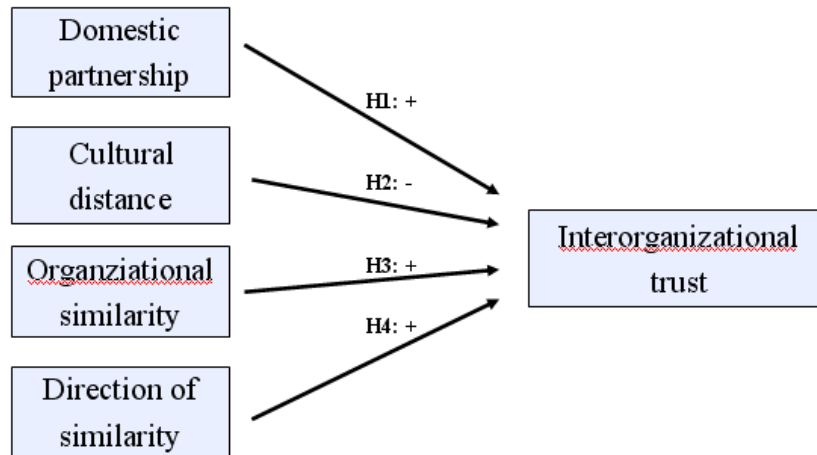
Young and small companies use networks to access resources that are beyond their financial capacity (Larson, 1992). These firm use their more established partner as a reference, which facilitates the establishment of future collaborations with other organizations. Relationships with legitimate, well-connected organizations may also be a

signal to potential stakeholders of the potential value of the firm or of its technology. Therefore, establishing and using relationships with more established, legitimate organizations allow young and small firm to build credibility more rapidly and gain legitimacy in the market place faster. Also, established firms and public research organizations have extensive knowledge stocks and developed capabilities and routines and thus represent important sources for learning and capability development. These potential benefits offered by more established partners may urge young and small firms to build higher levels of trust.

In addition, less controlled, established firms apply more complex strategies with conflicting demands whereas the behavior of more controlled firms is characterized by higher levels of predictability and standardization (Yin and Zajac, 2004). Predictability refers to the probability that an actor will behave in a certain way; trust is influenced by the ability to predict what other organizations will do and what situations will occur (Zucker, 1986). Collaborations with less controlled, established firms are more likely to have conflicts as these firms may change their objectives and goals while being engaged in interorganizational relationships. This lower predictability of behavior of less established firms may result in lower trust in these relationships. We therefore formulate the following hypothesis that takes the direction of difference in organizational context into account:

Hypothesis 4: The level of trust will be higher when the partner's organizational context is more established than the one of the focal organization.

Figure 5: Antecedent of interorganizational trust



4.4 Data and Method

Sample

Data on the characteristics of 297 relationships between young, technology-based firms and key partners – customer, supplier, commercial partner, technology partners and investor – are used to test the hypotheses. These partnerships are identified from a sample of 127 young, technology-based firms located in Flanders. We define young, technology-based firms as “ventures that are less than 12 years old which have their own R&D activities and develop and commercialize new products or services based on a proprietary technology or skill” (Heirman and Clarysse, 2004). To identify the sample, four different databases on firms founded between 1991 and 2002 in Flanders were used: (1) a database of all firms founded in high-tech and medium-tech sectors; (2) a database of spin-offs from the different Flemish universities and public research organizations; (3) a database of all firms that received government R&D subsidies; and (4) a database of companies in the portfolios of venture capital investors.

On the 1003 firms initially identified, a telephone screening was conducted and 247 met the definition of young, technology-based firm. Of these firms, 210 were interviewed in the first round of data collection in 2002-2003 for a study by Heirman and Clarysse (2004). The data used in this study were collected during a follow-up face-to-face

interview with the founder or CEO of each firm in 2005. By then, 22 of the original firms had gone bankrupt and six had been acquired. Of the 182 independent firms, 127 were interviewed, yielding a response rate of 70%. Four of the 127 firms had no key partners at the moment of interview and are therefore excluded from the analysis. Kolgomorov-Smirnov two-sample tests show that the responding firms are not significantly different in size – as measured by the number of employees – and age from non-responding firms.

We took several steps in the research design to reduce potential for common method bias (Podsakoff et al., 2003). First, we used multiple measurement items based on previous studies for each of the theoretical constructs. Statement-style items were measured on a Likert-scale from 1 (do not agree) to 7 (completely agree). Cronbach alpha was used to determine overall construct reliability. Confirmatory factor analysis was used to establish that only one factor is needed to represent each set of items. In line with construct reliability requirements (Nunnally, 1967), all Cronbach alphas are greater than .60. Second, the data for this study was collected in two phases. In the first phase, we interviewed the founder or CEO of the young, technology-based firm to identify their key partners and collected data on the level of trust, frequency of interaction, and level of commitment via a standardized survey. The CEO or founder was targeted since they typically hold most information about strategic issues such as key partner relationships (Carter et al., 1994). In the second phase, we concentrated on the partners and collected the data via secondary sources such as annual reports. To assess statistically whether common method bias was present we performed a Harmon's single factor test (Podsakoff and Organ, 1986). Results show that there are five factors with eigenvalues greater than one and the first eigenvalue accounts for only 14% of the variance; so common method variance is not a problem in our data.

Dependent variable

The dependent variable in this paper is *the level of interorganizational trust*. We focus on the level of trust built in the dyadic relationship between the young, technology-based firm and its key partners. We used four items to measure trust at the level of the organization: (1) this partner has always been neutral in negotiations with us; (2) this

partner may use opportunities that arise to his profit at our expense³; (3) based on passed experience, we cannot confidently rely on the promises this partner makes to us¹; (4) this partner is trustworthy. These items were developed based on Zaheer et al. (1998). We did not include the item “We are hesitant to transact with SupplierX when the specifications are vague” since the range of partnerships in our study is not limited to buyer-supplier relationships. The Cronbach alpha for the level of interorganizational trust is .72.

Independent variables

Domestic partnership Domestic partnership is a dummy that indicates whether the key partner is a domestic company or not (Gulati, 1995). When the dummy equals one, the partner is a domestic company and takes the value of zero when the partner is internationally located.

Cultural difference To measure the difference in culture between international key partners and the young, technology-based firm, we used the dimensions developed by Hofstede (1980, 1991). This measure of cultural difference or distance has been widely used in international business research (e.g. Barkema et al., 1996; Tihanyi et al, 2005; Dow and Karuratna, 2006, Hutzschenreuter and Voll, 2008). The five Hofstede dimensions are: (1) large power distance; (2) individualism; (3) masculinity; (4) uncertainty avoidance index; (5) long-term orientation. We computed the cultural difference in conformity with the Euclidean distance⁴:

$$CP_j = \sqrt{\sum_{i=1,2,3,4,5} ((I_{ij} - I_{ib})^2 / V_i)}$$

where,

CP_j = cultural proximity of the jth country from Belgium

I_{ij} = index for the ith cultural dimension and jth country

b = Belgium

V_i = the variance of the index of the ith cultural dimension.

³ Reverse coded

⁴ We also computed the cultural distance following Kogut and Singh (1988). The correlation between the K-S measure with the Euclidean distance is .94***. We ran the models using Kogut and Singh Index influenced the effects slightly; all levels of significance remain equal.

The sample includes 35 key partners that are local subsidiaries of foreign companies in Belgium. The culture of the headquarters, i.e. country where the headquarter is located, influences the culture of its subsidiaries (Rosenzweig and Singh, 1991). To calculate the cultural distance between the young, technology-based firm and local subsidiaries, we averaged the scores of Belgian dimensions and the cultural dimensions of the country where the headquarter is located.

Organizational similarity To measure the organizational similarity between the young, technology-based firm and the key partner, we focus on two organizational characteristics that have been argued to impact the organization's behavior: the extent to which the company has attracted outside financing (e.g. Sapienza and Korsgaard, 1996; Helmann and Puri, 2002) and the extent to which the company has foreign subsidiaries (e.g. Kostova and Roth, 2002; Johanson and Vahlne, 1977). To render the organizational context of the firm into practice we give each independent company a score of 1; a company with external financing gets a score of 2; a company listed on the stock exchange or a multi-national company is granted a score of 3; and public organizations get a score of 4 (as they are not-for-profit organizations). The organizational similarity between two partners is calculated as the absolute value of the organizational context of the young, technology-based firm minus the organizational context of the key partner. By doing so, our operationalization of organizational similarity ranges from zero to three. If the two organizations are similar, the score of organizational similarity is zero. If the young, technology-based firm is an independent, simple organization (operationalization: 1) and works together with a company listed on the stock exchange or multi local company (operationalization: 3) then the measure is two. A higher score indicates an increasing organizational dissimilarity between the partners. By developing the scale, we implicitly assume that the distance between the different categories of our measure is the same. Although the scale's disadvantage, it facilitates the interpretation of the results in the analyses (Argyres and Silverman, 2004).

Direction of organizational similarity is +1 if the partner's score on organizational context is higher than the score of the young, technology-based firm, zero if both partners

have similar organizational contexts and -1 if the partner's score on organizational context is lower than the score of the young technology-based firm.

Control variables

We include a number of other variables that also may have an impact on the level of trust embedded in the relationship between two organizations.

Longevity of the relationship. Trust in relationships between organizations (and individuals) evolves over time. Originating from the literature on organizational learning (e.g. Levitt and March, 1988), partners get to know each other, develop common goals and create a shared understanding thereby building trust (Ring and Van de Ven, 1992). We therefore include the longevity of the relationship, which is measured as the number of years since the establishment of the partnership, as a control variable.

Level of interaction. Previous studies show that communication between partners has an important influence on the level of trust (e.g. Young-Ybarra and Wiersema, 1999). Rather than asking for the level of face-to-face contact, we measured the level of interaction between the young, technology-based firm and the key partner as the frequency of interaction, irrespective of the communication method. Since companies increasingly engage in international partnerships⁵, we therefore allow respondents to also consider communications means such as email and telephone conversation. E.g. companies collaborate with foreign distribution partners to access complementary marketing skills and local networks thereby reducing the risks and costs of doing business abroad. Working with international partners offers less opportunity to have face-to-face contact. Arguably, the rapid change in speed, quality and efficiency of international communication counterbalances the lack of face-to-face contact. We operationalized the level of interaction between the young, technology-based firm and the key partner using a Likert-scale question ranging from 1 (being less than once a month) to 5 (being almost every day).

⁵ Moreover, frequent face-to-face contact requires co-location, i.e. the companies have to be located on the same site (e.g. Lam, 1997). Less than 10 partners in our sample were located on the same site.

Commitment. We included the extent to which the focal firm shows commitment in the relationship (Luo, 2002). The following items are used to construct this measure: (1) we have invested a lot in building this relationship with this partner; (2) even when there should be a major change at the side of the partner we would not terminate our relationship; and (3) we are committed to this partner. These items are based on Wilson and Vlosky (1998). The Cronbach alpha for this measure is .70.

Type of partnership. The interorganizational relationships in this study involve the young, technology-based firm and its network of key partners. Building on Dyer and Singh (1998) and Yli-Renko et al (2001), we asked each firm to identify their most important partners: key customer, supplier, partner for commercial activities (e.g., distributor), partner for technology development, and investor and resulted in 297 relationships from 123 firms. The nature and context of these partnerships differ, which may influence the level of trust residing in the partnership. We therefore include the type of partnership as a control variable in the model.

Industry sector We include four dummy variables to represent the sectors studied. The four dummies capture the different sectors in which the young, technology-based firms operate: electronic equipment, biotechnology, micro-electronics, information and communications technology (ICT). The default sector was “others”.

4.5 Analysis and Results

We tested our hypotheses using hierarchical multiple regression analysis by entering the control variables in Model 1, adding the independent variables in Model 2 and introducing a derived independent variable (the direction of organizational similarity) in model 3⁶. The resulting standardized coefficients and their standard errors of these separate models are reported in Table 9.

⁶ See appendix for the descriptive statistics of the variables used in the analysis. The score of the VIF range from 1.02 to 4.26. All scores are below the cut-off of 10, multicollinearity is ruled out (Neter et al., 1990).

Table 9: Hierarchal regression models: dependent variable is the level of interorganizational trust

	Model 1	Model 2	Model 3
Control variables			
Longevity	.08 ⁺ (.054)	.10* (.055)	.10* (.054)
Level of interaction	.02 (.058)	.02 (.057)	.03 (.057)
Commitment	.42*** (.057)	.41*** (.057)	.39*** (.057)
Customer	-.11 ⁺ (.072)	-.07 (.074)	-.06 (.075)
Supplier	-.06 (.067)	-.02 (.070)	-.00 (.070)
Commercial partner	-.07 (.062)	-.02 (.068)	.00 (.068)
Technology partner	.02 (.066)	.01 (.067)	.02 (.068)
Electronic Equipment	-.14* (.070)	-.11 ⁺ (.070)	-.11 ⁺ (.070)
Biotechnology	-.07 (.067)	-.06 (.067)	-.07 (.066)
Micro Electronics	-.11* (.066)	-.09 ⁺ (.065)	-.09 ⁺ (.065)
ICT	-.18* (.076)	-.15* (.076)	-.15* (.076)
Independent variables			
Domestic partnership		.27** (.11)	.30*** (.11)
Cultural distance		.23* (.10)	.25* (.10)
Organizational similarity		.11* (.056)	.01 (.080)
Direction of organizational similarity			.14* (.078)
Adjusted R ²	.18	.20	.20
F	6.81***	6.18***	6.02***
Df (residual)	285	282	281

*** p ≤ .001, ** p ≤ .01, * p ≤ .05, + p ≤ .10; one-tailed

Standardized errors in parentheses

Model 1 shows the impact of the control variables on the level of interorganizational trust. The regression analysis shows that resource commitment devoted to the relationship is of significant importance to the level of trust. Less outspoken is the effect of longevity of the relationship on the level of trust. Interestingly, the intensity of interaction between the focal firm and its key partner did not affect the level of trust in any statistical significant way. This might, at least partially, be related to the fact that, in many cases, there is no geographical proximity or co-location between the firm and its key partner. Five key partners were identified, and investors are used as reference category so they do not show up in the Models to avoid the dummy trap. Model 1 shows that organizations

have more trust in their investors than in customers, suppliers and commercial partners they collaborate with (see negative sign of the latter categories), although only in the case of customers this difference is significant. It seems that the organizations in our sample have less trust in their partners that are active in the high tech sectors that we defined such as electrical equipment, biotechnology, microelectronics and ICT than the key partners active in the sectors that were included in the base category.

In Model 2, the independent variables are introduced. First, the level of interorganizational trust is significantly higher if the key partner is from the same country. This finding corroborates Hypothesis 1. Second, as cultural distance gets larger, the level of interorganizational trust rises refuting Hypothesis 2. This finding calls for further scrutinizing, since it does not support the homophily theory. The third element is the organizational similarity in which the focal firm is related to its key partner. A larger difference (measured in absolute terms) implies dissimilar organizations and the parameter estimate states that the level of interorganizational trust is significantly higher for dissimilar organizations. Also Hypothesis 3 does not receive support

In line with homophily theory, we operationalized the organizational similarity variable by calculating the absolute value of the difference in organizational context between the two partners. We extend homophily theory by introducing the ‘direction’ of organizational similarity between organizations as a measure in Model 3. We see that the significance of the effect of domestic partner augments slightly and its significance increases, stressing that its impact on the level of interorganizational trust strengthens. Interestingly, the impact of the fact that organizations differ loses its importance in favor of the direction of this dissimilarity; providing support for Hypothesis 4.

The primary goal of our study was to gain a deeper understanding of how homophily between young, technology-based firms and key partners influence the level of trust embedded in the relationship. We consider different types of key partnerships – customers, suppliers, commercial partners, technology partners, and investors – which can be grouped into business partners (i.e. customer, supplier and commercial partner) on

the one hand and resource providers (technology partner and investor) on the other hand (Tether, 2002; Spithoven and Teirlinck, 2006). In the following, we present a supplementary analysis that examines the effects of domestic partnerships, cultural distance and organizational similarity on trust in the group of business partners versus the group of resource providers. Table 10 shows the results of the four regressions – two for each group – and we also perform a classical Chow test (Koutsoyannis, 1977; Greene, 2005) to test the differences between the two groups.

Table 10: Hierarchal regression models: dependent variable is the level of interorganizational trust

	Business partners		Resource providers	
	Model 4a	Model 4b	Model 4c	Model 4d
Control variables				
Longevity	.08 (.071)	.08 (.071)	.18* (.092)	.16* (.091)
Level of interaction	.02 (.071)	.02 (.071)	.01 (.090)	.06 (.092)
Commitment	.36*** (.071)	.35*** (.072)	.48*** (.089)	.43*** (.091)
Electronic Equipment	-.14 ⁺ (.087)	-.14 ⁺ (.088)	-.08 (.12)	-.06 (.12)
Biotechnology	-.06 (.083)	-.06 (.083)	-.06 (.12)	-.07 (.11)
Micro Electronics	-.13 ⁺ (.082)	-.13 ⁺ (.082)	-.03 (.11)	-.05 (.11)
ICT	-.20* (.096)	-.20* (.096)	-.02 (.14)	.02 (.14)
Independent variables				
Domestic partnership	.25* (.11)	.26* (.12)	.42* (.24)	.44* (.24)
Cultural distance	.19* (.12)	.20* (.12)	.47* (.25)	.49* (.25)
Organizational similarity	.08 (.068)	.05 (.097)	.16* (.095)	-.02 (.13)
Direction of organizational similarity		.04 (.098)		.28* (.13)
Adjusted R ²	.15	.14	.24	.27
F	4.21***	3.83***	4.38***	4.56***
df (residual)	178	177	97	96

*** p ≤ .001, ** p ≤ .01, * p ≤ .05, + p ≤ .10; one-tailed

Standardized errors in parentheses

In the case of business partners Model 4a is compared to Model 2 in Table 9. We see that the impact of longevity on interorganizational trust, a relation that was significant in Model 2, disappears. Similar to Model 2, the effect of dealing with a domestic partner

and the effect of cultural distance is significant and positive. The element of organizational similarity, however, is no longer significant if the relationship is between business partners. Introducing the direction (Model 4b) does not alter anything. Model 4c reruns Model 2 for relationships with resource providers. It shows that the longevity of the relationship with resource providers is responsible for the positive effect on interorganizational trust as identified in Model 2. Interesting, we see that the effects of economic sector on interorganizational trust have disappeared. Finally, we find that the organizational similarity (Model 4c) and direction of organizational similarity (Model 4d) are significant and positive in the case of relationships with resource providers.

We have tested the statements above in a more formal way by means of a Chow test to corroborate this by investigating the consistency of the results (Koutsoyannis, 1977; Greene, 2003). This test takes differences of levels of significance into account. If no differences exist, a pooled data analysis suffices. The test investigates whether the parameter estimates between business partners and resource providers differ significantly. First the parameters of Model 4a and 4c are compared (using a 5% significance level). The $F^* = 25.63$ is well above the critical value of $F(11,275)=1.823$ and thus the null hypotheses that the parameters are equal has to be rejected: the two sets of parameter estimates differ significantly. Next, Model 4b is compared to Model 4d and we find $F^* = 23.52$ which is larger than the critical value of $F(12,273)=1.788$: again the parameters differ significantly and the regressions in Model 4b and 4d differ, indicating that the relations to interorganizational trust is different according to partner type.

4.6 Discussion

In this paper, we adopted homophily theory to study the level of interorganizational trust between young technology-based firms and its key partners. We started our analysis by examining the influence of domestic versus international partnerships on trust. Consistent with Hypothesis 1, domestic partnerships enjoy higher levels of interorganizational trust than their international counterparts. Cultural similarity provides partners with shared schemes that permits them to achieve higher levels of trust. The effect of cultural

immersion has been shown to influence organizational characteristics and how organizations shape their activities. For example, Dyer (1996b) shows how US firms are more vertically integrated and collaborate through arm's-length relationships. In contrast, Japanese firms rely more on extensive networks of alliance partners to build competitive advantage. The differences between the US and Japan in the extent to which they engage in vertical integration and how firms govern interorganizational relationships is influenced by the societal context in which these firms operate (Hill, 1995). We extend this line of research through our finding that cultural immersion has a positive influence on trust between organizations.

Our second finding might be considered counterintuitive at first sight since it is in contrast with the notion that cultural barriers hinder trust building (e.g. Luo, 2002): a higher cultural distance between partners results in a higher level of trust. To refine the insights in the relationship between cultural distance and interorganizational trust, we performed an additional analysis by entering the five Hofstede dimension separately in the model to scrutinize this relationship. Results show that the coefficient of the difference on the Uncertainty Avoidance Index between the partner and the focal firm is positive and highly significant ($\beta = .24$, $p < 0.01$), while the other four dimensions are not significant. The Uncertainty Avoidance Index, which is a measure of how people perceive opportunities and threats in their environment and how they act upon them (Schneider and De Meyer, 1991), is relatively high in Belgium (ranked seventh on a total of 69 countries) compared to the United States (ranked 58th). In a previous study, Bruneel and Clarysse (2006) showed that the United States is an important growth market for young, technology-based firms located in Flanders. Establishing key partner relationships with US companies are therefore extremely important for these companies because working together with US partners offer opportunities to learn about this market, which proves to have a positive influence on entering foreign markets and speeding up the commercialization process (Bruneel, Yli-Renko and Clarysse, 2006).

Results of the first two hypotheses taken together, we find that the level of interorganizational trust turns out to be high when the young, technology-based firms and

partners share the same cultural background. When the young, technology-based firms engage in partnering with foreign organizations, however, trust levels increase with cultural distance. We explored this unexpected finding by introducing the five cultural dimensions separately in the model. This additional analysis revealed that the level of trust in international partnerships is influenced by the extent to which the foreign partner offers market opportunities to accelerate the young, technology-based firm's growth.

Hypothesis 3 argued that similarity between organizations has a positive impact on trust. Interestingly, the result shows a clear positive relationship between organizational similarity and trust, which is in contrast to our third hypothesis. The level of interorganizational trust increases as the difference between a less established young, technology-based firm and its key partner increases. If the focal firm partners with a less established organization then the level of interorganizational trust is lower, thus supporting Hypothesis 4. Our finding that young, technology-based firms have higher trust in more established, legitimate organizations relates to the concept of reputation-based trust (Rousseau et al, 1998). Reputation-based trust is based on a rational choice, i.e. the focal firm perceives the partner to be beneficial. Partnering with organizations that have a strong reputation brings product-quality benefits and also enhances the focal firm's reputation (Larson, 1992). McKnight et al (1998) posit reputation categorization as one of the mechanisms to explain high levels of trust. Reputation categorization refers to situation where one will have high trust in an organization, even without first-hand information or previous relationship experience. Trust is then based on second-hand information, reputation, which reflects competence (e.g. Powell, 1996) or trusting beliefs such as benevolence (Dasgupta, 1988). In a similar vein, Mayer et al (1995) posit that the ability of the trustee, representing its set of skills, competences, expertise, and characteristics, affects trust. We found that reputational effects and the external legitimacy offered by the partner through the relationship have an important influence on the level of interorganizational trust in the context of young, technology-based firms.

Next there are the other, non-homophily related, variables in the model. Longevity, as measured by the number of years the relationship between young, technology-based firm

and its key partner exists, stands in a positive relation with interorganizational trust: the longer the relationship lasts; the more trust the firm shows in this key partner. The relationship is positive and significant, which is in line with the proposition that trust develops over time (e.g. Lewicki and Bunker, 1995). Over time, the focal firm learns how the partner company is organized and how it responds to certain events (Mayer and Argyres, 2004). Through collaboration, partners discover each other and how differences in structure, processes, routines and alike may need to be overcome thereby making the cooperation more effective (Doz, 1996). Companies engaged in interorganizational relationships adapt themselves to the specific circumstances of the relationship and develop a common ground how to behave and communicate in the relationship.

The level of interaction between the young, technology-based firm and its key partner is measured through the frequency of contacts, and proved to have a non significant relation to interorganizational trust. Here a misspecification of measurement could be the main cause of this finding, since this variable does not look into the channel of interaction. In our study, we conceived the level of interaction broader than just face-to-face contact, leaving out the last mechanism due to the international character of the key partners. With the evolutions in communication technologies (e.g. electronic mail, video conferencing...), people are able to interact over large distance without meeting each other in person. Arguably, the non-significant relationship between the level of interaction and the level of interorganizational trust points out to the importance of personal, face-to-face contact. Several studies show that ongoing interaction between organizations, which are embedded in close personnel relationships, positively influences the level of trust (e.g. Palay, 1985). Interaction without physical co-presence of parties does not provide the opportunity to acquire meaningful sensory information and context, limiting the understanding of what is going on (Van den Bulte and Moenaert, 1998) This finding suggests that non-personal contact does not substitute for face-to-face communication in the context of building trust.

The relation between commitment and the interorganizational trust is found to be positive and significant. The higher the commitment of the young, technology-based firm to the

relationship, the higher the interorganizational trust will be. This finding implies that achieving high levels of trust demands the investment of resources and commitment. Relationships between individuals and organizations start with an initial stock of assets. The extent to which organizations invest initial assets such as resources and commitment influences the risks of the relationship dissolving (Finchman and Levinthal, 1991). Relationships starting with high initial stock of assets, the investment of resources and commitment, face lower risks of relationship dissolving, even when the outcomes are unclear or unfavorable. Through the investment of resources and by showing commitment, the buffering of the relationship from risk or failure is greater. This result indicates that strong, established relationships require the investment of resources and commitment, which is in line with Das and Teng (1998: 495) who state that “trust is not for free: trust building... takes considerable resources from organizations”.

We also performed two separate sets of regression analysis to further explore the influence of the independent and control variables on trust: one for partnerships with business partners and one for partnerships with resources providers. The effects of domestic partnership and cultural distance are similar for business partners and resource providers; i.e. trust is higher when partners have the same cultural background and trust increases with greater cultural distance. In contrast, however, we see that the organizational similarity is not significant and positive in the sample of business partners whereas it is positively associated with trust in relationships with resource providers. The additional analysis with the direction of organizational similarity shows that young, technology-based firms have more trust in resource providers which are more established. As for the control variables, we see that longevity is only positive and significant when partnering with resource providers. The Chow test confirms that the relations to interorganizational trust differ significantly between business partners and resource providers

4.7 Limitations and conclusion

We recognize the limited nature of our study in terms of research design which opens areas for future research. More specifically, we measure the level of interorganizational trust at a single point in time. Trust might however be affected by incidents that are triggered over time and therefore has a cyclical nature. There is need for a longitudinal study which measures trust over a period of time to average out these temporarily differences. Second, our research design implies that we rely on the perception of single respondents with regards to a phenomenon that is measured at a different level of analysis, i.e. the organization. Trust is embedded in the shared beliefs of individuals that form the organization and might be biased if single respondents are asked. Future research could benefit from nested models of trust measured over significant periods of time.

Further, we depart from homophily theory to formulate our hypothesis. Homophily means that similarity evokes trust. However, we find that the antecedents of trust might be exactly the opposite. Legitimacy, reputation and other characteristics are found to intervene with the similarity – trust relationship. This has resulted in our finding that in particular cases dissimilarity leads to more trust than similarity. The interaction between legitimacy or reputation as an antecedent of trust and similarity needs further exploration. Due to data limitations, this is beyond the scope of our possibilities, but is an interesting avenue for further research.

We also encourage future research to further explore the complex relationship between cultural distance and interorganizational trust. Our results show that trust levels increase with cultural distance when organizations engage in partnering with foreign organizations. We explored this unexpected finding by introducing the five cultural dimensions separately in the model. This additional analysis indicated that the level of trust in international partnerships may be influenced by the extent to which the foreign partner offers market opportunities to accelerate young, technology-based firm's growth. Also, interorganizational trust may function as a counterbalance to differences in cultural background between organizations.

Do “birds of a feather flock together”? Does similarity imply higher trust levels between organizations? Partnerships are a vital element for the development of young, technology-based firms lacking the necessary resources, struggling with legitimacy issues and looking for learning opportunities. Networking with various types of key partners provides these firms with the resources, capabilities and opportunities to help them developing. The relationship between young, technology-based firms and their key partners is primarily based on trust relations between them, referred to as interorganizational trust. We set out to examine if interorganizational trust was influenced by homophily between the young, technology-based firm and its key partners. Using multiple regression analysis the findings point to higher levels of trust for organizations located within the same country. Counterintuitive, high levels of trust are associated with partners operating in different cultural environments. Dissimilarity in organizational context influences the trust levels positively and young, technology-based firms have higher trust levels in their dealings with more established partners and this especially in the case of collaborations with resource providers. Taken together, these result provide mixed support for the homophily principle. Overall, our findings suggest that the level of interorganizational trust between young, technology-based firms and key partners is driven by the extent to which the partner provides the young firm with external legitimacy, resources and opportunities.

4.8 References

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Appendix

Table 11: Descriptive statistics of the independent variables (N=297)

	Mean	Stdev	Min	Max
1 Domestic partnership	.47	.50	0	1
2 Cultural difference	1.30	1.43	0	6,49
3 Organizational similarity	0.98	0.88	0	3
4 Direction of organizational dissimilarity	0.47	0.50	0	1
4 Longevity	4.74	3.16	1	14
5 Level of interaction	2.96	1.33	1	5
6 Commitment	5.19	1.28	1.33	7
7 Partner type ^a				
• Customer	.33	.47	0	1
• Supplier	.20	.40	0	1
• Commercial partner	.11	.31	0	1
• Technology partner	.15	.36	0	1
• Investor	.24	.41	0	1
8 Industry sector ^b				
• Electronic equipment	.19	.39	0	1
• Biotechnology	.14	.35	0	1
• Micro-electronics	.12	.32	0	1
• ICT	.39	.49	0	1
• Others	.16	.37	0	1

^a we used investor as the default type of partner in the analysis. ^b we used “others” as the default industry sector in the analysis.

5 Does internationalization influence organizational advantage? Internationalization, learning and growth in young, technology-based firms.

ABSTRACT

We contribute a rare longitudinal examination of the effect of internationalization on the evolution of organizational capabilities. We used a 10-year longitudinal data set of 88 young, technology-based firms from Flanders (Belgium) to examine how internationalization impacts entrepreneurial firm's substantive and dynamic capabilities, as reflected in its ability to grow. We found that internationalization exercises an important formative influence on the entrepreneurial firm, the size of which depends on the firm's age at internationalization. A complex relationship between management team's shared domestic experience and internationalization outcomes is observed, suggesting that the effect of internationalization on organizational capabilities and rigidities is more complex than previously thought.

KEY WORDS: internationalization, firm performance, organizational capabilities, young firms, time series analysis

Does internationalization influence organizational advantage? Internationalization, learning and growth in young, technology-based firms.

5.1 Introduction

During recent years, the notion that entrepreneurial firms can use internationalization to build *de novo* sources of competitive advantage, rather than *exploit* an established advantage, has gained increasing currency (Autio, 2005; Autio et al; Matthews and Zander, 2007; Oviatt and McDougall, 1994). This notion, popular among researchers of international entrepreneurship, contrasts with more established models of new and small firm internationalization, which have tended to emphasize internationalization as a mechanism that enables firms to exploit already established firm-specific advantages for further growth beyond national borders (Chetty and Holm, 2000; Eriksson et al, 1997; Johanson and Vahlne, 1990). In the international entrepreneurship perspective, the building of *de novo* advantages is considered possible because of advantages offered by the entrepreneurial firm's initial knowledge endowments, and because of their 'learning advantage of newness', or greater adaptability to foreign market conditions due to less burdensome domestic idiosyncrasies (Autio et al., 2000). Because young internationalizers carry less rigid 'administrative heritage' (Collis, 1991; Knight and Cavusgil, 2004), they have less domestically-optimized routines to unlearn, enabling them to more readily embrace opportunities outside domestic borders. During the process of adapting to the 'learning shock' of internationalization, young internationalizers are also considered able to develop more robust organizational capabilities that are better suited to international markets than those developed in domestic settings (Sapienza et al, 2006). Combined, such factors are considered to help explain the 'Born Global' phenomenon (Oviatt and McDougall, 2005).

The organizational adaptability and capability development arguments, as rehearsed by international entrepreneurship scholars, tend to emphasize advantages associated with

organizational youth and rigidities that accrue with organizational age. In an attempt to explain the possibility of early and proactive internationalization, this tradition has either ignored or de-emphasized the notion that some internationalization-related advantages may accrue, rather than diminish, with age. This is problematic, because it is well known that many organizational characteristics associated with age (e.g., firm size, related market power, ability to withstand environmental jolts) are actually helpful for internationalisation. Even the dynamic capabilities literature, which has been used to argue for a ‘learning advantage of newness’, notes that ‘change capabilities’ are strengthened with use, and therefore, implicitly, with age (Zahra et al, 2006). A further complication is that the empirical tests of the of the association between organizational age and internationalization performance remain few (Lewis et al, 2005; Wegner, 1986; Wegner et al, 1991; Zhang et al, 2007), and received reviews of the exporting-performance relationship show conflicting results (Autio, 2005). Such results are difficult to interpret, given the tendency of the international entrepreneurship literature to provide a rather cursory discussion of exactly what organizational capabilities are built during internationalization and exactly how these translate, or do not translate, into firm-level performance.

In this study, we seek to provide a more balanced and nuanced examination of the various relationships between internationalization, organizational age, and organizational capabilities. We suggest that the above cited contradictions and inconsistencies in received literature arise, in part, from an insufficient attention to what organizational capabilities are built over time, in which situations different capabilities matter, and for which purpose the different capabilities are deployed. We also think that received literature has not sufficiently considered age-related effects on an organization’s ability to pursue *new* opportunities encountered during internationalization, as opposed to adapting their *current* business models. We suggest that while younger internationalizers may indeed enjoy an advantage in adapting their current business model to foreign market conditions, change-related capabilities built over time will confer an advantage for older internationalizers in pursuing new opportunities encountered during internationalization. This is because of how management teams develop, over time, *transactive memory* that

enables the team to react quickly and efficiently to new opportunities (Buckley and Casson, 1998; Dunning, 1998b). Thus, new internationalizers may be simultaneously advantaged due to smaller unlearning package accumulated during the firm's established operations and disadvantaged due to their inferior ability to quickly and effectively seize new opportunities outside the scope of their current business model. We test these effects using longitudinal data from 88 internationalizing young, technology-based firms located in Flanders. Observed interactions within our dataset suggest the simultaneous existence of unlearning advantages and opportunity pursuit disadvantages in new internationalizers.

In the following we first review received theoretical arguments and empirical findings concerning the internationalization-performance relationship in small and medium-sized firms. We then develop our theoretical model, drawing on the organizational capabilities and international entrepreneurship literatures. The model is tested using data from Flanders (Belgium). We conclude by discussing the significance of our findings for further research and theory on dynamic capabilities in small and medium-sized firms.

5.2 Theoretical model development

From the perspective of international entrepreneurship, the main criticism against the multinational enterprise theories concerns the static treatment of firm-specific advantages (Kogut and Zander, 1993). This static treatment leaves little room for proactive entrepreneurial action. In the well-established ownership-location-internalization theory of multinational enterprises, these organizations are thought to enjoy advantage over the market by virtue of controlling resources and internalizing critical, often knowledge-intensive transactions (Kuemmerle, 1999). Multinational enterprises control and transfer resources and knowledge across different countries (Autio, 2005; Li, 2007; Matthews et al., 2007; Oviatt et al., 1994), thereby exploiting international resource asymmetries (Barkema and Vermeulen, 1998; Eriksson et al, 2000; Johanson and Vahlne, 1977). As such, however, frameworks on the multinational enterprises consider the initial ownership advantages to be the well-established and given product of home country conditions, and little attention is given to the initial creation of this advantage (Buckley

and Casson, 1976). As Matthews and Zander (2007:392) observed: “There is little recognition in the [multinational enterprise] theory for the firm’s expansion internationally being seen as a way of anticipating and building its competitive position – in a way that would not be possible in the firm’s domestic market:..”. Instead, the focus of these theories is on how multinational enterprises protect and expand existing advantages – a view echoed by the internationalization process theory (e.g., Delios and Beamish, 1999). The creation of an advantage through internationalization remains largely a black box in much of the received literature on international business, and this gap has only recently begun to be addressed by researchers subscribing to the international entrepreneurship tradition.

As such, there exist a number of explanations of the static ‘multinational enterprise’ advantage, as well as the multinationality – performance relationship in the MNE literature. The internalization argument emphasizes the ability of multinational enterprises to gain an advantage over the market by internalizing certain transactions (Zaheer, 1995). Because the internalization perspective does not directly address coordination costs associated with international expansion, this perspective has tended to predict a monotonous positive relationship between international diversification and performance – a hypothesis supported by a large number of empirical studies (e.g., Geringer et al, 2000; Zaheer and Mosakowski, 1997b). However, less diversified firms have superior performance because of their lighter administration (Davidson, 1984). Diversified firms achieve high performance on the condition of high management flexibility and great emphasis on planning and coordination.

More recently, more complex relationships between international diversification and performance such as U-shaped, inverted U-shaped, and S-shaped curves are studied (Hitt et al, 2006) The ‘liability of internationalization’ argument emphasizes the difficulties that newly internationalizing firms experience while entering foreign markets (e.g., Barkema et al., 1998; Hitt et al, 1997). Not surprisingly, this perspective has tended to predict and find a negative relationship between international diversification and performance (Lu and Beamish, 2004). Because of the ‘liability of foreignness’,

established multinational enterprises enjoy an advantage over newly internationalizing firms. As a third perspective, the process theory of internationalization has emphasized the learning shock that firms experience when exposed to foreign market conditions, as well as the impact of internationalization on coordination costs, notions that imply either inverted U-curve relationship between internationalization and performance (Lu and Beamish, 2001; Matthews et al., 2007), or alternatively, an S-curve relationship (Autio et al., 2000)⁷. For example, Belkaoui (1998) finds support for the inverted U-shape relationship in a longitudinal sample of the “Most International” 100 American Manufacturing and Service firms ranked annually by Forbes. He draws implicitly on the mechanism of experiential learning and argues that at the costs and investments at the initiation of the international process are high. During internationalizing, the firms increases efficiencies and enjoys economies of scale and scope. At a certain point, organizational performance will stagnate or decline.

INTERNATIONALIZATION AND PERFORMANCE OF ENTREPRENEURIAL COMPANIES

A limitation in the studies above is that they have not used data from small and entrepreneurial companies, but rather, from established companies and multinational enterprises. Even the internationalization process theory, the original contributions of which were derived from the context of Swedish manufacturing SMEs, has mostly been tested in the context of established and large companies. There has been much less theorizing and empirical research on the link between internationalization and performance in small and medium-sized companies (Zahra et al, 2000). Only few studies have focused on the relationship between internationalization and performance in entrepreneurial internationalizing firms, i.e., firms that internationalize relatively early in their organizational lives and have a relatively constrained initial resource base. Even fewer studies have considered this process from the perspective of organizational capabilities.

The few exceptions include for example Autio et al (2000), Zahra et al (2000), Lu and Beamish (2001), and Sapienza et al. (2006). Of these the Autio et al (2000) study found a

⁷ For a recent review, see Li (2007).

positive relationship between an entrepreneurial firm's age at internationalization and its subsequent sales growth. They interpreted this finding as signaling a 'learning advantage of newness', a competence-enhancing effect of internationalization that is particularly visible in new firms based on their greater organizational malleability. Interestingly, and contrary to expectations based on managerial attention theories, they also found that early internationalization was associated with greater *domestic* sales growth, signaling that the competence-boosting effects of early internationalization were generic and not limited to international markets only. Autio et al (2000) did not test curvilinear effects, however.

In a subsequent theoretical examination, Sapienza et al (2006) further elaborated on the notion of 'learning advantage of newness' and argued that internationalization exposes firms to new environments which require the development of new capabilities. Although internationalization has an important effect on capability development, they pointed out that capability development is costly, and that major organizational changes tend to increase hazards to survival, especially in young organizations. Zahra et al (2000) examined associations between internationalization and learning and found entrepreneurial internationalization to contribute both to the breadth and depth of technological learning from cross-border customers. They concluded that internationalization does not only result from innovative capabilities, but also, can serve as an important boost to such capabilities in its own right. More specifically, internationalization expansion increases the breadth, depth, and speed of technological learning. Firms with greater international expansion develop a broader set of technological skills and mastered them more thoroughly at a greater speed. Similarly, Wolf and Pett (2006) studied the relationship between internationalization and product and process improvement in a sample of US SMEs. They found that internationalization was positively related to product improvement by providing opportunities to learn about customer product needs, pricing needs and local distribution systems. This learning, in turn, allowed SMEs to achieve higher levels of sales and the creation of new product and services.

In a study of new ventures operating in technology-based industries, McDougall and Oviatt (1996) found a positive association between the level of international sales and the increase of the venture's relative market share, but there was no direct relationship between internationalization and firm profitability. They argue that internationalization is a necessity for such ventures because the size of the domestic market doesn't suffice to cover the high R&D investments. Bloodgood et al (1996) also found mixed support regarding the relationship between internationalization and firm performance. Whereas the extent of internationalization had a weak positive influence on the income of high-potential US new ventures, there was no significant relationship between internationalization and sales growth. Consequently, their study remains inconclusive whether internationalization yields clear advantages for new high-potential ventures. Westhead et al (2001) performed a longitudinal study to examine the impact of internationalization of new and small firms in the UK over the period 1990/91 to 1997. The results indicated that the propensity to export in 1990/91 didn't significantly effect subsequent sales and employment growth or survival seven years later.

Other researchers have examined more complex relationships between internationalization and firm performance. For example, Reuber and Fischer (2002) examined the moderating role of behavioral integration of the management team between foreign sales growth and total sales growth and found a positive interaction effect. Increased levels of international activities poses greater challenges for management teams of small firms. Greater behavioral integration contribute to better, faster decision making about foreign markets and a better ability to organizing capability so that foreign sales growth contributes effectively to overall sales growth. Lu and Beamish (2001) found that internationalization doesn't immediately lead to greater firm performance in the context of Japanese SMEs. Performance increase as SMEs develop new capabilities and more comprehensive international expansion strategies through experience accumulation.

In a follow-up study, Lu and Beamish (2006) found that early internationalizing SMEs, i.e. firms who made first foreign direct investment soon after founding, enjoyed faster growth than late internationalizers. Although early internationalizers face the liabilities of

foreignness at the very beginning of internationalization, these firms develop knowledge and capabilities which provide these firms the ability to adapt easier to the host country and learn more quickly in international markets. This study provides an independent test of “learning advantages of newness” argument. Majocchi and Zuchella (2003) found that internationalizing, Italian SMEs only achieve higher profitability when firms follow a step-by-step internationalization process. If foreign direct investment follows a high level of export activities, organizations are better able to apply the acquired foreign market knowledge and manage the internationalization process, thereby overcoming the liabilities of foreignness.

Of a related nature is the study of Knight and Cavusgil (2004). They examine the performance in international markets of born global firms employing an organizational capability perspective. They found that firms must possess knowledge-based internal organizational capabilities to be successful in foreign markets. Important capabilities are related to global technological competence, unique product development, enhancing product and customer service quality, service, and the ability to leverage foreign distributors’ competences. Firms competing in the international arena develop capabilities to organize their business and gain new information that enhance the firms’ competitiveness (Carpenter et al, 2003).

Summarizing, the results on the internationalization performance relationship are inconclusive with studies showing no relationship between going international and subsequent firm performance while others find positive, negative, or more complex associations. Also, most studies that have focused on the internationalization-performance relationship in SMEs have not explicitly considered the effect of age at internationalization on this relationship. This is an important gap, since most arguments for a capability-building effect of internationalization on SMEs emphasize the role of organizational age at the time of first international entry as a key factor influencing the relationship (George, 2005; Zahra and George, 2002; Zahra et al., 2006).

Moreover, received empirical findings suggest that this relationship is not necessarily linear, as suggested by received theorizing on the topic. Specifically, in an empirical examination of the effect of organizational age on export success, Fryges (2004) found that, while internationalization drove organizational growth in exporting firms less than five years old, this pattern was reversed after five years, with growth starting to drive internationalization. This finding suggests more complex relationships between organizational age and internationalization success than hitherto assumed in the international entrepreneurship literature. Although the international entrepreneurship literature emphasizes the constraining effect of age on organizational adaptability, surely not all age-related effects on organizations hinder adaptation to foreign markets. The organizational capabilities literature suggests that organizational capabilities, including change-related capabilities, are enhanced by repeated use over time, implying greater, rather than smaller, ability to adapt with age (Kuemmerle, 2002). Such observations would appear to contradict the IE argument that capability of the internationalizing firm to adapt to foreign markets is a monotonic negative function of organizational age at the time of first internationalization.

DOES INTERNATIONALISATION PRECEDE OR FOLLOW COMPETITIVE ADVANTAGE?

The dominant paradigm in the study of entrepreneurial firm internationalization so far has focused on explaining internationalization outcomes: why do some firms internationalize earlier or later than others, for example, or what explains the speed and patterns of international expansion (Barkema et al 1996; Barkema and Drogendijk, 2007; Hsu and Pereira, 2008; Johanson et al., 1977; Pedersen and Petersen, 2004a; Yeoh, 2004). Within this research tradition, firms are thought to internationalize to leverage a pre-established competitive advantage. This advantage is thought to arise from domestic sources and either take the form of advantageous access to valuable resources or superior capabilities that derive from the idiosyncratic domestic context (Matthews and Zander, 2007). While internationalization is considered to constitute a learning shock for the internationalizing firm, this shock is thought to create the need for the firm to adapt to new market conditions and customer demands (Autio, 2005; Oviatt et al., 1994; Sapienza et al.,

2006). As such, this tradition has not considered internationalization itself to constitute a source of superior organizational capabilities, however (Autio et al., 2000).

In the emerging tradition on international entrepreneurship, a different perspective is present. In this tradition, the process of internationalization itself is considered as a potentially valuable source of organizational capabilities that enable the internationalizing firm to create, rather than exploit, an organizational advantage, based on organizational capabilities developed during, rather than before, the process of internationalization (Autio, 2005; Mudambi and Zahra, 2007; Sapienza et al., 2006). In this tradition, the internationalization process is viewed similarly as a learning shock, but one which predominantly prompts the internationalizing firm to create new organizational capabilities, rather than adapting and modifying existing organizational capabilities. This is because young, entrepreneurial internationalizers have only a limited stock of organizational capabilities to start with, and they thus have little domestic package to unlearn (Mudambi and Zahra, 2007; Sapienza et al., 2006). Because the internationalizing firm is exposed to a greater variety of customer needs and demands, as well as institutional conditions, than a domestically operating firm normally would, As the internationalizing firm gets exposed to varied institutional environments, it needs to cope with new challenges and discover new ways of organizing. Doing so is likely to boost the internationalizing firm's dynamic capabilities, and hence, its ability to increase its growth rate. To date, however, there has been little empirical research on how internationalization impacts the internationalizing firm (Zaheer and Mosakowski, 1997a).

Internationalization does not automatically lead to rapid growth, however (Sapienza et al., 2006). Internationalizing firms face important liabilities of foreignness, and overcoming these may negatively impact their growth (Zahra et al., 2000). Firms are prone to make mistakes during foreign market entry, which will consume resources and potentially divert their attention from growth (Autio et al., 2000). Organizational learning itself is costly and resource-consuming: even though internationalization exposes the firm to valuable learning opportunities (Johanson et al., 1990; Sullivan and Bauerschmidt, 1990), firms may differ in their ability to take advantage of such opportunities (Johanson

and Vahlne, 1977). Therefore, internationalization may equally well enhance a given firm's growth prospects as it may lead to its demise.

In this paper, we address the above theoretical tension and contribute a rare test of the effect of internationalization on an entrepreneurial firm's ability to grow. Using longitudinal data from 88 young, technology-based firms, we examine the effect of the initiation and maintenance of cross-border sales on firm's ability to grow its sales. Using this design, we make several important contributions to the emerging domain of international entrepreneurship. First, we contribute to a better understanding of the tension between positive and negative organizational consequences of internationalization. Second, we contribute a rare test of the relationship between internationalization and firm growth ability, using a set of longitudinal panel data over the period of 10 years. Third, we develop a theoretical model that articulates effects of internationalization on an entrepreneurial firm's organizational processes, thereby adding to the small number of studies that have used internationalization as a predictor, not dependent, variable.

5.3 Hypotheses

FORMATIVE INFLUENCE OF TIMES SINCE EXPORT INITIATION (TSEI)

As discussed, the bulk of entrepreneurial firm internationalization research has focused on the *process* and *outcomes* of internationalization, as well as on their facilitators and constraints. Internationalizing entrepreneurial firms have been traditionally seen as internationalizing on the back of a specific competitive advantage (McDougall et al, 1994; Oviatt and McDougall, 1997), such as superior products and unsolicited export orders (Autio, 2005). In the new venture internationalization perspective, early and rapid internationalization is made possible by superior management ability, combined with superior knowledge resources (Autio et al., 2000). Whatever the influences on the process itself, entrepreneurial firms are overwhelmingly seen to internationalize *because* they possess some advantage, and the key focus has been to explain success in exploiting this advantage (Johanson, 1975; Welch & Luostarinen, 1988). Only few studies have

considered the effect of internationalization on firm-specific advantage, and also the studies of firm-level outcomes of internationalization processes are relatively rare.

In this study, similar to Autio et al. (2000) and Sapienza et al. (2006), we consider internationalization to exercise a *formative* influence over the internationalizing firm. Although received examinations on the relationship between internationalization and growth have been inconclusive, we think that there are good reasons to expect a positive association specifically in the context of technology-intensive firms operating from small and open economies. Received literature identifies four distinct sets of mechanisms favoring a positive association between internationalization and growth in such contexts. These are: market expansion effects; learning and capability development effects; knowledge asymmetry and integration effects and opportunity effects. We briefly rehearse each in below.

One of the longer-standing tenets in the internationalization literature maintains that the size of the domestic market can impose undue constraints for firm growth, especially for firms operating from a small domestic market base (Oviatt et al., 1994). This constraint applies particularly to technology-intensive firms, which tend to focus on specialized niche applications and services (Bloodgood et al, 1996). Quite often, the markets for technology-intensive products and services are international in character, which provides a natural ‘push’ factor for international growth (Zaby, 1999). In addition, young, technology-based firms develop and commercialize new products or services, which require significant investments and resources. The size of the domestic market is often insufficient to recover the high R&D costs (Kobrin, 1991). Furthermore, a firm broadens its customer base by serving multiple markets and can thus realize greater performance. Internationalization is attractive for entrepreneurial firms as it provides significant opportunities for growth (Lefebvre et al, 1998). Although internationalization processes are inevitably plagued by sometimes costly mistakes, the benefits, on balance, outweigh the costs associated with international expansion. In small domestic markets, therefore, the domestic market size may act as a growth constraint, the removal of which would likely have a ‘champagne bottle effect’ and lead to a spurt in growth.

Also the learning and capability development effects of internationalization have long since been recognized in the literature. Pedersen and Petersen (1994) maintained that internationalization constitutes a 'learning shock', which will prompt the internationalizing firm to develop new capabilities and learn new skills. These skills and capabilities can then be leveraged for faster growth, both domestically and internationally (Autio et al., 2000; Grant, 1996). Oviatt et al (1992) also recognized this effect, observing that enhanced organizational capabilities constitute an important element of the benefits associated with early and proactive internationalization. The development of new organizational routines, as well as the firm's ability to achieve intended ends through cross-border resource mobilization, are also central elements of Matthew and Zanders' (2007) treatment of the 'entrepreneurial dynamics' of internationalization. To the extent that the firm has sufficient resources to bear the cost of new routine development, therefore, internationalization should boost not only the firm's possibilities to grow, but also, the firm's ability to do so.

Finally, internationalization should also provide knowledge-based impetus for faster organizational growth. Internationalization also exposes the entrepreneurial firm to greater variety of external knowledge, which should boost its learning opportunities (Dunning, 1998a). Kogut and Zander (2000) and Zahra and George (2002) argued that a main mechanism for new knowledge creation is through the combination of existing knowledge items. In the context of internationalization, this translates into an internationalizing firm's ability to benefit from cross-border resource asymmetries – a well-established argument in the ownership-location-internationalization literature. As the knowledge variety faced by the firm increases, the firm's exposure to cross-border knowledge asymmetries should increase opportunities for new knowledge creation through knowledge combination – an effect empirically observed by Zahra et al (2000). An important driver of such opportunities is the firm's exposure to varied customer needs and demands abroad. To the extent that the firm is able to integrate the diverse knowledge outputs into a coherent product and service offering, internationalization should, therefore, give rise to enhanced growth prospects, particularly for firms whose strategy is based on the creation and exploitation of new technologies. On the other hand,

the domestically operating firm will face lesser degree of knowledge variety, which should inhibit its new knowledge development opportunities. In technology-intensive new firms in particular, knowledge creation should be associated with faster sales and organizational growth. Summarizing, we expect that:

Hypothesis 1: A firm's internationalization of sales to foreign markets will have a linear positive influence on subsequent sales growth in internationalizing entrepreneurial firms.

INFLUENCE OF AGE AT ENTRY (BR)

Organizational age plays an important role in how strongly the formative influence of initial conditions, such as internationalization, is imprinted upon the firm's capabilities and knowledge processes (McGrath, 2001). Such imprinting is caused by the need of internationalizing firms to upgrade and adapt their routines, structures and organizational capabilities to fit foreign task environments. In order to fully understand the implications of foreign imprinting, it is necessary to consider what constraints firms face when doing shaping and adjusting to foreign market conditions, how long-lasting the effects of such adjustments are likely to be, and whether these effects are path-dependent or not. Different mechanisms contributing to the imprinting process will give rise to differing outcomes with regard to direct and moderating effects of organizational age on internationalization outcomes. The nuances of such outcomes are regulated by the way how entrepreneurial firms generally develop new capabilities and where such capabilities reside in the organization.

In their treatment of capability accumulation in entrepreneurial firms, Zahra et al (2006) made a helpful distinction between 'substantive' and 'change' (or dynamic) capabilities. Substantive capabilities enable firms to solve given problems or achieve intended ends, whereas dynamic capabilities enable the firm to change the ways in which it solves given problems. Substantive capabilities are capabilities that enable the firm to perform tasks in a given task environment i.e., to perform its routine business activities dictated by its business model. This implies that substantive capabilities are exercised repetitively. They

are also constantly fine-tuned, as organizations seek to increase their efficiency by reducing variability in outcomes associated with given activities (Barkema et al., 1998; Pedersen et al., 2004a). Because of the tendency of firms to routinize repetitive activities so as to maximize efficiency, substantive capabilities tend to evolve in a path-dependent fashion, as firms gradually learn to understand causal mechanisms that underlie task performance. Furthermore, because substantive capabilities have to do with the performance of routine tasks, they tend to accrue and reside in lower, operational echelons of the organization. To the extent that the organization's task environment remains unchanged, the organization is likely to constantly increase its performance by optimizing its substantive capabilities to fit the demands specified by its business model and its task environment.

An essential aspect of the 'learning advantage of newness' argument is that young internationalizers have yet to shape many of their organizational structures and substantive capabilities and can thus more readily shape them to support sustained international growth (Amburgey et al, 1993; Baron et al, 1999; Boeker, 1989; Hannan et al, 1996; Sapienza et al., 2006). An entry into foreign markets will, almost invariably, prompt the need of the firm to adjust its routines to the new task environment (Barkema et al., 1998; Sapienza et al., 2006). Although well-shaped substantive capabilities confer older internationalizers greater 'staying power' in the face of environmental jolts, they can also operate as a source of structural inertia that hampers the firm's ability to adapt (Autio et al., 2000). As organizational routines and processes get optimized over time, re-shaping them grows progressively more difficult as organizations age. The task of re-shaping substantive capabilities is made harder by the fact that they tend to be widely spread in the organization, and they tend to reside in lower organizational echelons. The difficulty of unlearning established routines is manifested in a temporary decline in performance as internationalizing older firms adjust their activities after a foreign market entry (Eriksson et al., 1997; Johanson et al., 1977). In the case of young internationalizers, proactive adjustment of organizational routines is not only aided by the absence of pre-established domestic inertia, but also, by the urgency imposed upon young internationalizers by the need to survive (Ahuja and Lampert, 2001). Overall, thus, one

should expect young internationalizers to more strongly and more fully exhibit the performance implications generated by internationalization. This leads us to hypothesize:

Hypothesis 2a: The age at first internationalization of the firm will exercise a negative influence on sales growth subsequent to first internationalization.

Hypothesis 2a argued for a direct age-related effect of internationalization on sales performance, due to young organizations' learning advantages of newness (Autio et al, 2000). In addition to this direct effect, we propose that organizational age also moderates the longer-term effect of internationalization formative influence on organizational performance. Specifically, we propose that as the business model (and related substantive capabilities) of early internationalizers is built from scratch around internationalization, this will instill a self-reinforcing path-dependency of internationalization learning. This path dependency will have long-lasting implications on how efficiently an internationally operating firm will be able to convert cross-border experience and learning into organizational growth.

While late internationalizers face the task of adapting their domestically-optimized business model and related substantive capabilities to support internationalization, early internationalizers will be able to shape their business model around internationalization from scratch. This means that a greater portion of the overall pool of organizational experience of early internationalizers will be imprinted by internationalization. As organizational resource commitments are regulated by the pool of organizational experience, early internationalizers will be more likely than late internationalizers to make further resource commitments to foreign markets (Hannan, 1998). This dynamic feeds a self-reinforcing path dependency of internationalization learning. In contrast, late internationalizers, by virtue of their search being to a greater extent confined to domestic environments, may fall into a self-reinforcing propinquity trap (Miller and Friesen, 1984) of domestic learning and expose them to a "liability of senescence" (Gavetti, 2005; Gavetti and Levinthal, 2000).

The above dynamic is reinforced by an increased compartmentalization of learning as a function of age. Over time, the push toward efficiency prompts organizations to refine their internal division of tasks and organizational roles (Nag, Corley, & Gioia, 2007). The increased internal specialization will, over time, both reduce the extent to which new experiences are widely shared amongst members of the organization, and it will also reduce the ability of organizational members to absorb lessons from one another. This development will further hamper the ability of late internationalizers to fully absorb and assimilate lessons learned through cross-border experience.

Finally, early internationalizers will be subject to cognitive effects that imprint upon them a long-term self-reinforcing ability to absorb lessons from internationalization. Late internationalizers will be more likely to have developed entrenched routines which will filter and constrain their search processes (Nonaka, 1994). Early internationalizers, thus, will be more likely than late internationalisers both to search and recognize opportunities outside national borders. Early internationalizers will also be more likely to develop an organizational identity as an international firm (and not as an internationalized domestic firm), which should enhance their willingness to embrace further international growth (Postrel, 2002). Summarizing, because early internationalizers build their business model around internationalization, they will develop a self-reinforcing organizational and learning path dependency to support further international expansion. Therefore, we hypothesize:

Hypothesis 2b: Age at first internationalization will moderate the effect of exposure to foreign market conditions (i.e., time elapsed since first international entry) on subsequent sales growth such that this effect will be stronger for early internationalizers and weaker for late internationalizers.

INFLUENCE OF MANAGEMENT TEAM'S SHARED DOMESTIC EXPERIENCE (MSDE)

Postponing internationalization may also give rise to cognitive impediments that operate independent of the organizational context. Similar to the way organizations optimize their routines to their task environments during the course of their business operations, also

teams of managers develop established beliefs regarding their business model. Many start-ups are started by teams of individuals who have pre-firm shared experience of working together. While working together in a given line of business, managers develop managerial knowledge, or ‘established true beliefs’ about how their business works (Barkema et al., 1998) (Klimoski and Mohammed, 1994). Managerial mental models are, in effect, compositions of such beliefs representing a shared understanding of how a given line of business works and why (Johnson-Laird, 2006) – i.e., an identification of relevant drivers of business performance and their underlying causal mechanisms. This template is inevitably shaped by the context within which it is formed, and it is rare for such templates to extend beyond the immediate transaction context faced by managers (Brandon and Hollingshead, 2004; Wegner, 1986). Over time, beliefs regarding, e.g., the choice of appropriate marketing devices to achieve a desired increase in sales will grow idiosyncratic to the context within which managers experiment with alternative approaches. Such beliefs regarding associations between actions and outcomes will grow stronger with repetitive, coherent feedback (‘every time I do A, B follows’) until managers *know* that A *causes* B. Thus, the longer a given management teams shared pre-firm experience of working together in the domestic environment, the stronger beliefs they will hold regarding the ‘do’s’ and ‘do not’s’ of their business model.

Internationalization represents a step-change in the economic, cultural and institutional environment that the management team has to cope with. When a management team with a long domestic experience of working together expands the business model to foreign markets, they will seek to apply their managerial knowledge in the new context. To the extent that the new context conflicts with established beliefs, the team’s established courses of action may fail to produce desired outcomes (‘we did A to achieve B, but we got C instead’). The more firmly the managers *know* that A causes B and not C, they are likely to reject, at least initially, any feedback that conflicts with their pre-firm experience, and the longer they are likely to persist in repeating A even though it repeatedly fails to produce B. Because of this dynamic, management teams pre-firm domestic experience of working together will hamper their ability to adapt their business

model in foreign business environments and improvise new approaches, hence deducting from their post-internationalization growth performance:

Hypothesis 3a: Management team's pre-firm domestic experience of working together will exercise a negative influence on sales growth subsequent to first internationalization.

Not all age-related developments hinder adaptation in organizations. As Zahra et al (2006) observed, both substantive and change (or dynamic) capabilities are strengthened by repeated application – i.e., if regularly exercised, they should strengthen as a function of organizational age. Thus far, our considerations have focused on adaptability impediments that accrue through organizations' substantive capabilities and management mental models, as they get shaped to supporting the organization's initially domestic business model. Such impediments make it increasingly difficult for firms, over time, to adapt their business model to international markets. However, we propose that management teams also develop capabilities that enable them to more efficiently pursue opportunities outside the scope of their initial business model. Specifically, we argue that shared experience management teams to develop transactive memory (Hannan, 1998) that enables them to pursue diversification opportunities encountered during internationalization.

Originally proposed by Wegner (1986), the concept of transactive memory addresses group processes that enable groups to encode, hold and retrieve information regarding how to respond to external demands, process information and perform both repeated and unique tasks. Transactive memory systems are collective systems for storing and retrieving group knowledge (Brandon et al., 2004; Lewis et al., 2005). They develop over time as members of a team work together in solving problems, communicate with one another and observe each others' actions and behaviors. During the process of working together, team members develop and share task-relevant knowledge, learn about each others' strengths, weaknesses and special skills, and learn to coordinate internal task execution and problem solving processes (Lewis et al., 2005). Such processes enable

groups to perform more efficiently in stable task environments, and, relevant to our consideration here, in dynamic and changing environments. Group cohesiveness is positively related to team performance (Ancona and Caldwell, 1992) as it reduces competition among management team members. Lewis et al. (Lewis et al., 2005) identified three cycles through which transactive memory systems develop. Initial learning cycle develops when group members start to associate group members with specific types of expertise as well as recognize specific facts that individual group members know. This phase provides a basis for internal specialization, which follows naturally from group-level recognition of individual domain expertise. During the second, learning by doing cycle, the group develops efficient internal processes to perform given, defined tasks. During the third phase, through repeated performance of individual tasks, group members develop generalized abstractions of factors underlying task performance through analogical decoding (Gentner, Loewenstein, & Thompson, 2003) and collective induction. (Laughlin and Hollingshead, 1995). Analogical decoding enables individuals and groups to infer and implement generalized principles across different but analogous problems. Collective induction enables groups to infer general principles from concrete examples of a given principle. Combined, the processes of internal specialization, analogical decoding and collective induction enhance groups' ability to efficiently resolve problems that are different but analogous to problems that they have resolved before.

When teams of individuals, such as a company's management team work together in implementing a given business model or operating in a given business domain, they develop transactive memory systems that enable them to resolve new problems, such as diversification opportunities. Management teams with strong transactive memory systems will be able to more effectively organize for the pursuit of diversification opportunities encountered during internationalization. The joint working experience of seasoned management teams enables them to instinctively decide how to organize for a given type of opportunity, as well as to assign tasks to individuals with strong specialization in a given task. Procedures developed while working together enable the team members to effectively coordinate their actions and leverage each others' strengths. Teams with little

experience of working together will not be able to draw on previous transaction experiences, and they will encounter greater coordination and trial-and-error costs when organizing for the pursuit of diversification opportunities outside the realm of their immediate business model. For this reason, management teams with a longer pre-firm experience of working together domestically will be able to more effectively pursue diversification opportunities outside their current model, and they should be able to convert opportunities encountered during internationalization to growth more effectively than teams without such experience.

Here, it is necessary to consider triggers of managerial contemplation. Previously, we have argued that management's mental models hinder adaptation of existing business models to foreign market conditions. In this section, we have argued that seasoned management teams will also have developed capabilities that enable them to pursue diversification opportunities more effectively than inexperienced teams would be able to. The crucial distinction in our argument is between opportunities (and challenges) within and outside the confines of the firm's existing business model. To the extent that new opportunities arise within the confines of the firm's existing business model, the management team is likely to treat such opportunities using pre-established mental templates and not recognize the new problems as substantively different from those they have encountered during domestic business operations. If the problem falls within the confines of the firm's pre-existing business model, therefore, the management team is likely to apply its standard tools in an effort to solve them. Only when the problems encountered represent non-trivial departures from the firm's existing business model, will the management team resort to its transactive memory system in an effort to develop novel approaches to resolving them. In this effort, the seasoned management team will be aided by its shared experience of working together, as established friendships will facilitate collaborative improvisation (McGinn and Keros, 2002).

Apart from transactive memory systems, prior experience of working together will also enhance group cohesiveness, which again should help the firm react to unrelated diversification opportunities. Conflicts and group cohesiveness influence the quality of

strategic decision making by management teams. Previous research has shown that cognitive conflicts are fruitful whereas affective (or interpersonal) conflicts jeopardize decision quality (Amanson, 1996). Affective conflicts between management team members reduce the use of agreement seeking behavior which in turn has a strong negative impact on building strategic consensus (Knight et al, 1999). Teams with prior working experience are more cohesive and have higher trust than teams without such experience (Goodstein and O'Reilly, 1988). In a study of semiconductor ventures, Eisenhardt and Schoonhoven found that team member's past experience together has a positive influence on venture performance (1990). They argued that management teams with prior working experience take decisions faster and make fewer mistakes. Building on the concept of transactive memory and increased efficiency of teams with prior collaborative experience, we hypothesize:

Hypothesis 3b: Management team's earlier domestic experience will moderate the effect of exposure to foreign market conditions on subsequent sales growth such that this effect will be stronger for management teams with longer shared domestic experience.

INFLUENCE OF ENTRY MODE INTENSITY (EMI)

When entering foreign markets, firms are confronted with an important strategic decision regarding the mode of internationalization (Lu, 2002). The international entry mode affects firm performance (e.g. Pan et al, 1999) because it influences the firm's competitive position in a market (Prahalad and Lieberthal, 1998) and its ability to gain foreign market knowledge (Holmund and Kock, 1998). The strength of internationalization formative influence is dependent on the intensity of the type of the entry mode employed (Zahra et al., 2000). The ability to acquire new skills is dependent on the extent to which the entry mode requires direct and deep involvement into international markets (Afuah, 1998). The more intensive the market entry modes employed, the more intense will be the exposure to foreign market influences, and therefore, the greater the effect on the firm's ability to grow rapidly.

Direct entry modes provide the opportunity for frequent social interaction with foreign customers which strengthens mutual understanding and facilitates good relationships (Young-Ybarra and Wiersema, 1999). Greater social capital, in turn, results in higher levels of external knowledge acquisition and knowledge exploitation (Yli-Renko et al, 2001). Also, social interaction offers more learning opportunities and increases the motivation to learn (Wu et al, 2007). Getting firsthand feedback from local customers is important for firms to adjust their products and services to local requirements and preferences. So, the greater the direct involvement into the local market, the greater and more valuable the knowledge acquired from local customers, the better will be the adjustments of products to the local preferences, and thus the higher firm performance.

Also, transferring and communicating knowledge between organizations is associated with high costs, especially when knowledge is of a tacit nature and thus difficult to codify (Kogut and Zander, 1992). The cost to transfer knowledge, defined as the cost of transmitting and absorbing all of the relevant unembodied knowledge, is very dependent on the ability of the transferor to fully understand it (Teece, 1977). Given the high level of complexity and tacitness associated with the offerings of young, technology-based firms, indirect distribution channels are less effective for the acquisition of foreign market knowledge. Therefore, direct entry modes are more appropriate for young, technology-based firms since new knowledge and information is identified and acquired on the spot. Summarizing:

Hypothesis 4a: The intensity of market entry modes will exercise a negative influence on sales growth subsequent to first internationalization.

Hypothesis 4b: The intensity of market entry modes will moderate the effect of exposure to foreign market conditions on subsequent sales growth such that this effect will be stronger of more intensive entry modes.

Figure 6: Relationship between internationalization and performance – direct effects model

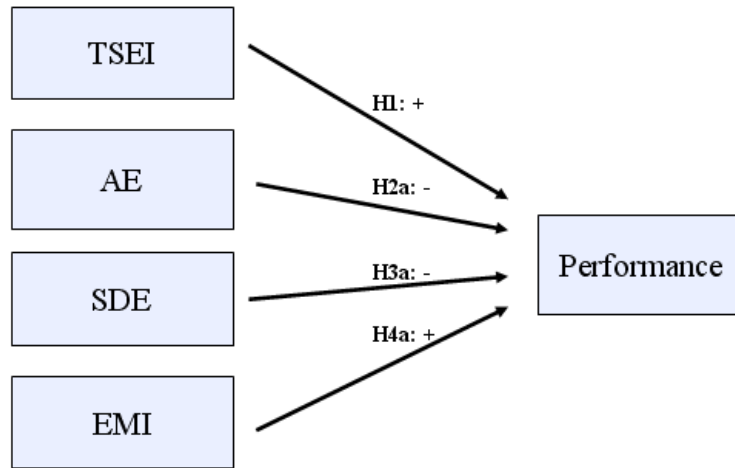
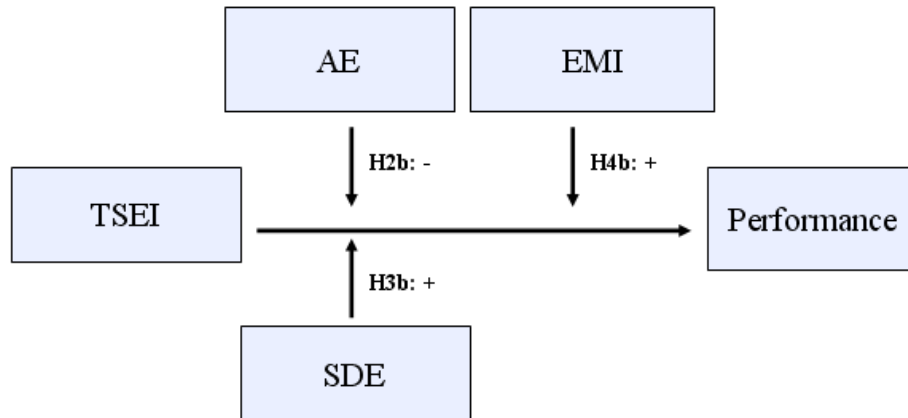


Figure 7: Relationship between internationalization and performance – interaction effects model



5.4 Data and Method

To test the hypotheses, we use a sample of young, technology-based firms in Flanders. By only focusing on one region, the non-measured variance among firms resulting from environmental conditions is reduced (Deeds et al, 1999). Flanders is a small, export-intensive economy located in the Northern part of Belgium considered to be an emerging high-tech region (Cantwell and Iammarino, 2001). We define young, technology-based firms as founded between 1991 and 2002, which have their own R&D activities, and develop and commercialize new products or services based upon a proprietary technology or skill (Heirman and Clarysse, 2005).

The initial sample of 210 firms was constructed for a study by Heirman and Clarysse (2005) during the period 2002-2003. Data were collected on these firms via face-to-face interviews with founders or senior managers of the firms while the data for the present study were collected in follow-up interviews in 2005. By then, 22 of the original responding firms had gone bankrupt and 6 firms were excluded because they had been acquired. We collected panel information on 88 internationalizing young, technology-based firms. The panel is unbalanced, the number of observations per firm varies between one and thirteen. We found no systematic differences in age and size between the panel and the non-respondents, revealing no response bias. The median age of the firms is 8 years and almost 40 percent of the sample firms served foreign markets during their first year of operation.

Dependent variable

We used sales growth to measure organizational performance (Eisenhardt and Schoonhoven, 1990). Sales growth is a widely used performance measure in entrepreneurial firms, because it testifies of the success of the firm has achieved in market entry (Autio et al, 2000). Sales growth can be a particular pertinent performance variable in internationalization situations, because it demonstrates the firm's ability to overcome the liability of foreignness (Zaheer and Mosakowski, 1997). We measured firm sales as the difference in sales each year of life through 2004 (our final year of observation) relative to a common starting point: the sales at time of first internationalization (Eisenhardt and Schoonhoven, 1990). We obtained these data from the respondent and were supplemented with data from the firms' financial accounts. We used a logged form of sales, implying that we analyzed relative changes in the dependent variable.

Independent variables

Time since export initiation (TSEI), which reflects the firm's exposure to foreign markets, was measured as a formative influence, the effect of which accumulates over time. This influence was measured as time lapsed, in years, since the firm first generated sales from foreign markets.

Behavioral rigidity (BR) captures the organizational age at first internationalization. This variable relates to the age of the firm at the moment of first internationalization (AE) (Autio et al, 2000). As time passes, also the influence of organizational age on internationalization outcomes will change. Therefore, we converted our measure of organizational age at first internationalization into a saturation clock using the following formula and yearly time increments: $BR_t = 1 - \frac{t}{AE + t}$.

Management shared domestic experience (MSDE) relates to the number of years of shared domestic experience of the management team prior to founding the company (MSDE). Similarly to behavioral rigidity, we use a saturation clock: $MSDE_t = 1 - \frac{t}{YSDE + t}$.

Entry mode intensity (EMI) represents the intensity of the entry mode used by the company to target foreign markets (at time t) and is operationalized as follows: indirect method = 1, direct exports = 2, subsidiary = 3.

Control Variables

Industry sector. We inserted the industry sector in which the young, technology-based firm competes as a control variable since previous research shows that the industry is likely to influence the performance of firms (e.g. McGahan and Porter, 1997). The firms in the sample were grouped into five industry sectors: electronic equipment, biotechnology, micro-electronics, information and communications technology (ICT), and other high-tech sectors.

Sales in first year of export (SFY). The sales in first year of export was included as a control variable as a common starting point for our growth measure. This control variable is also a proxy for the size of the young, technology-based firm at moment of first internationalization.

Year dummies. Since the panel spanned 1992 to 2004, we also used dummy variables to control for year fixed effects. Table 12 reports the descriptive statistics and correlations between the variables.

Table 12: Descriptive statistics and correlation matrix

	Mean	Stdev	1	2	3	4	5
1. TSEI	4.19	2.81	1				
2. BR	.22	.26	-.40	1			
3. MSDE	.26	.33	-.23	-.08	1		
4. EMI	1.93	.67	.11	.04	.13	1	
5. SFY ^a	5.48	1.43	.00	.34	.18	.19	1

Coefficients with an absolute value above than .09 are significant at the .05 level, two-tailed. Year and industry dummies are not reported. ^a The natural log of this variable is used in the analysis.

5.5 Analysis and results

To test the hypothesized relationships discussed above, we employed cross-sectional time series analysis by generalized least-square regression for random effects using the xtreg command in STATA 9.2 software. We chose a random effects model over a fixed effects model for 3 reasons. First, using fixed effects models would result in losing information on time invariant variables, e.g. industry sector. In random effects models, however, it is still possible to run estimations with regressors that do not vary within the groups (Greene, 1997). Second, previous research has discussed how fixed effects models can produce biased estimates for panels over short periods (e.g. Chintagunta et al, 1991). Since the relatively small number of observations per young, technology-based firm (the average is five), random effects model is more appropriate. Third, some firms have only one year of data given the unbalanced character of our sample. In fixed effects models, such observations do not play a role. In addition, we also performed a Hausman test to check whether fixed- or random effects models were more appropriate. The not significant result on the test further supports the choice for the random effects model (Hausman, 1978). We selected robust estimator since it provides a more conservative test of the hypotheses and one gets efficient and reliable estimates regardless of the presence of outliers (Zhou and Zhu, 2003). Table 13 gives the results of our hypothesis tests. Model 1 shows the impact of the control variables on sales growth. We see that the sales

in the first year of internationalization are positively associated to subsequent sales growth. Further, firms operating in micro-electronics enjoy higher sales growth.

Table 13: Results of regression analysis: dependent variable is sales growth

	Model 1	Model 2	Model 3	Model 4
Controls				
SFY	.47*** (.092)	.44*** (.094)	.48*** (.089)	.48*** (.089)
Electronic Equipment	.09 (.29)	-.13 (.28)	-.12 (.28)	-.09 (.28)
Bio-technology	.55 ⁺ (.35)	.59* (.38)	.68* (.34)	.66* (.34)
Micro-electronics	.69* (.31)	.28 (.32)	.41 (.36)	.41 (.36)
ICT	.34 (.27)	.43* (.25)	.31 (.25)	.31 ⁺ (.25)
Independent variables				
H1: TEI		.18*** (.034)	.09** (.037)	.10** (.038)
H2a:BR			-.90*** (.29)	-.93*** (.30)
H3a:MSDE			-.76** (.26)	-.53* (.25)
H4a:EMI			.61*** (.087)	.62*** (.085)
Interactions				
H2b TSEI * BR				-.22* (.13)
H3b: TSEI * MSDE				.51** (.19)
H4b TSEI * EMI				-.04 (.04)
Const	2.12*** (.57)	3.33*** (.59)	2.08*** (.55)	2.14*** (.55)
R ² within	.42	.42	.53	.54
R ² between	.22	.40	.46	.47
R ² overall	.28	.41	.51	.52
Wald Chi2	264.15***	292.74***	489.86***	494.01***

Number of observations: 465. number of firms: 88. Year dummies are included in the analysis, but not reported. Unstandardized coefficients are reported. Standard errors are in parentheses *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, + $p \leq .10$; one-tailed. The variables were cross mean centred before entering the interaction terms.

In Model 2, we introduce the effect of time since export initiation to test Hypothesis 1. We find that internationalization does exercise an important normative influence on internationalizing young, technology-based firms, one of which is positive associated with sales growth: the coefficient of TSEI is positive and significant (beta =.18, $p \leq .001$). Hypothesis 1 is therefore supported.

Next we introduce the variables BR, MSDE, and EMI to test the direct effects of behavioral rigidity, management team's shared domestic experience, and entry mode

intensity on sales growth. We see a strong effect of organizational age on sales growth subsequent to first internationalization. The negative association means that older internationalizers grew their sales slower subsequent to internationalization ($\beta = -.90$, $p \leq .001$) Hypothesis 2a is thus supported. Next we stated a negative influence of the management team's earlier domestic experience on sales growth subsequent to first internationalization. We find that the coefficient of MSDE is negative and significant ($\beta = -.76$, $p \leq .01$), which provides support for Hypothesis 3a. Finally we proposed a positive direct effect of entry mode intensity on sales growth subsequent to internationalization. The coefficient of EMI is positive and significant, thus supporting Hypothesis 4a.

In model 3, the interaction effects between time since export initiation and the other explanatory variables are introduced. The interaction effect between time since export initiation and behavioral rigidity is negative and significant (TSEI * BR: $\beta = -.22$, $p \leq .05$). This finding is in line with our moderation effect of Hypothesis 2b that proposed a weaker influence of time since export initiation on sales growth for older internationalizers. The moderation term TSEI * MSDE is positively associated with sales growth ($\beta = .51$, $p \leq .01$), which is inline to the hypothesized positive moderation effect of the mismanagement team's shared domestic experience on sales growth (Hypothesis 3b). In firms with longer shared domestic experience, the formative influence of exposure to foreign markets is stronger. Finally, we find that the moderation effect between time since export initiation and entry mode intensity is positive but not significant. Thus, Hypothesis 4c is not supported (TSEI * EMI: $\beta = .04$, ns).

Additional analyses

To further examine the interaction effects, we performed a median split analysis and ran separate regression at low levels of BR (MSDE) and high levels of BR (MSDE), respectively. A graphical presentation of these tests is shown in figures 8 and 9. Consistent with the predicted interaction effect, the coefficient of the BR variable increased from .114 ($p \leq .01$) for late internationalizers to .195 ($p \leq .001$) for early internationalizers, i.e. companies that started the internationalization process earlier after

founding. Results show that the effect of TSEI is stronger for low levels of BR than for high levels of BR, but it remained significant throughout. Similarly, the effect of TSEI increased from .157 ($p \leq .001$) for companies with team that have little MSDE to .189 ($p \leq .001$) for companies with teams that have greater MSDE. As indicated in figures 8 and 9, the moderation effect of BR on TSEI is much stronger than for the effect of MSDE, as indicated by the larger difference in mean slopes of BR (71%) versus MSDE (20%).

Figure 8: Graphical presentation of the interaction effect between TSEI and AE

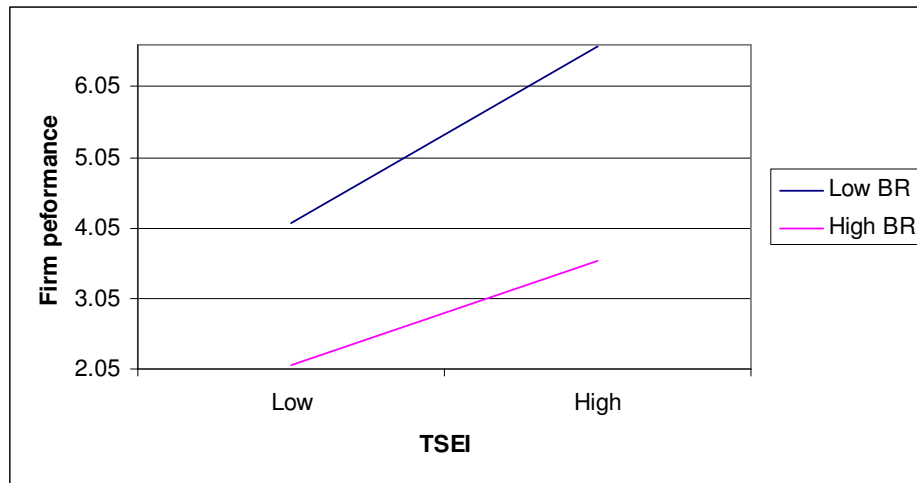
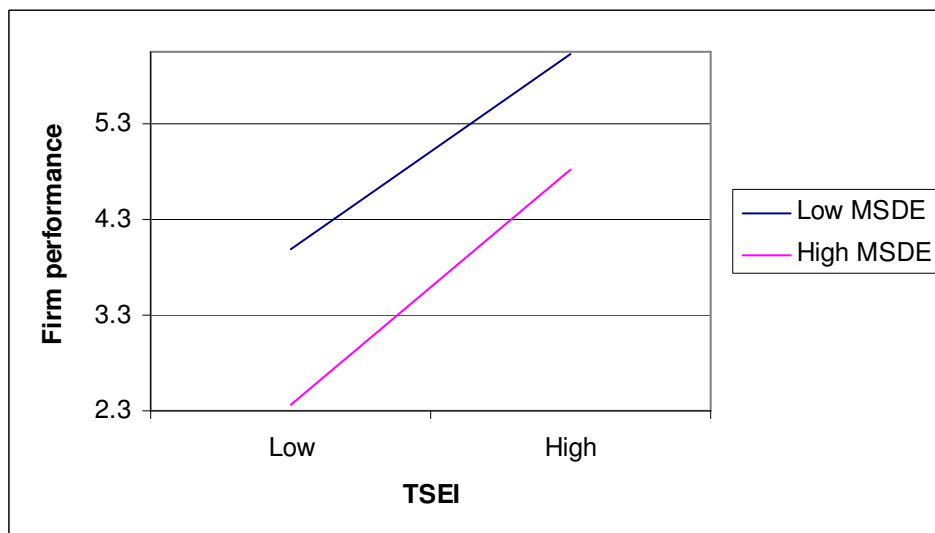


Figure 9: Graphical presentation of the interaction effect of TSEI and SDE



Next, we also perform an additional analysis to tease out the overall impact of the firm's age at entry at first internationalization and the management team's shared domestic experience on sales growth. Here we analyze the simultaneous impact of the direct and interaction effect of these two explanatory variables holding the other variables in the model constant; we use the averages of sales in the first year of internationalization, time since export initiation and entry mode intensity. This way we examine what the impact is of postponing internationalization and having a seasoned (or not) team on sales growth. The result of the effect of age at entry is shown in Figure 10. We see that the firm realizes more than 1.2 million Euros if the firm starts to internationalize during the first year after founding. If however the firm waits one year before entering foreign markets, it suffers a drop in sales of more than 500 thousand Euros. Postponing the internationalization process with five years has a very negative impact: sales are almost 800 thousand Euros lower as compared to firms that immediately internationalize. Similarly, Figure 11 graphically pictures the overall influence of the management team's shared domestic experience on sales growth. Firms that are founded by teams that have no prior collaborative experience realize a sales of over half a million Euros. Sales increases to 750 thousand Euros if the team has worked together one year before founding the company. With five years of prior collaborative experience, sales rise to more than 1.3 million Euros. The implications of our findings are discussed next.

Figure 10: Graphical presentation of the overall impact of age at entry

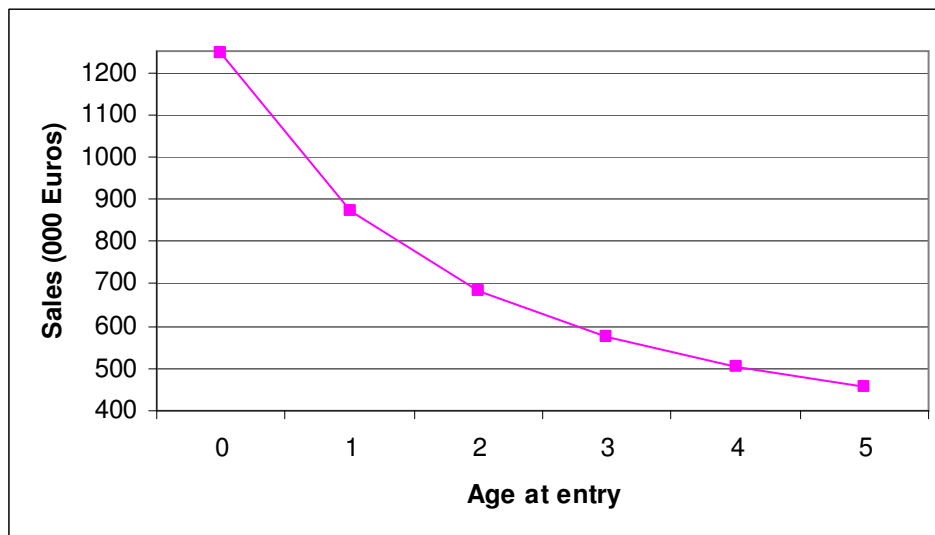
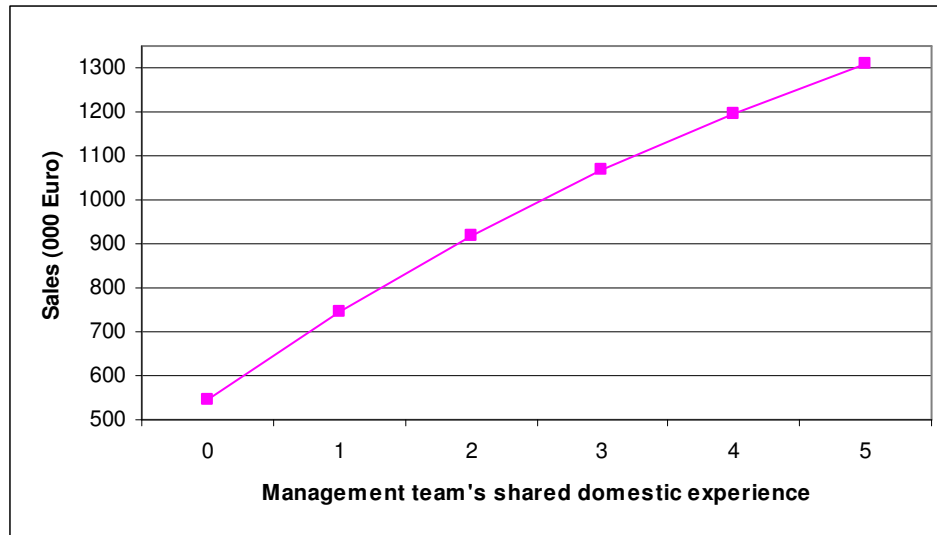


Figure 11: Graphical presentation of the overall impact of management team's shared domestic experience



5.6 Discussion

The aim of this study was to provide more insights in the relationship between internationalization, organizational capabilities, and firm performance. Most studies on the relationship between internationalization and performance use data on large, established companies and multinational enterprises. There has been much less theorizing and empirical work on this link in small and medium sized firms. Few studies have used internationalization as a predictor and found mixed results. Using longitudinal data of young, technology-based firms, we examined how internationalization influences sales growth subsequent to foreign internationalization. We argued that going international exerts a formative influence on capability development and growth. Further we introduced the effects of age at entry, management team's shared domestic experience, and entry mode intensity as important determinants of growth and also considered the interactions with the formative influence of internationalization on growth.

Our analysis shows that internationalization exercises an important formative influence on the internationalizing firm's organizational capacities. Because of demands placed upon organizational learning, internationalization boosts entrepreneurial firms' capacity

to grow. Going international exposes the firm to different environments that results in a higher degree of knowledge variety. This, in turn, contributes to the breadth, depth, and speed of learning (Zahra et al, 2000). Consistent with received theory on organizational imprinting (Hannan, 1998), this effect appears to be stronger for younger firms. Young firms are constrained by existing routines and processes and enjoy “learning advantages of newness” (Autio et al, 2000). Adapting existing routines and processes to new markets come at a cost because they are deeply rooted in the organization. As firms postpone internationalization, they become more tailor-made to the domestic context (Nag et al, 2007) which hampers the ability to absorb and learn lessons through foreign experience. Thus our finding of a negative moderation effect of age at entry and internationalization on sales growth indicates that the dynamic of the “learning advantages of newness” is reinforced as a function of age.

Sapienza et al (2006) argue that: “...the earlier a firm internationalizes, the more deeply imprinted its dynamic capability for exploiting opportunities in foreign markets will be. By exposing young firms to multiple and diverse exogenous (e.g., competitive conditions) and endogenous (e.g., resource demands) stimuli, early exposure to internationalization creates an imprint for adaptability to uncertain environments and an internal receptivity for continual change.” We find the exact opposite in our research. Early internationalization does not imprint greater adaptability to organizational change, and dynamic capabilities (as expressed in the ability to react to opportunities outside the firm’s current context) may increase as a function of organizational age. Our findings thus suggest that it is important to distinguish between adaptation of the firm’s current scope and substantive capabilities and adaptation outside the firm’s current scope and dynamic capabilities. We suggest that when firms age, they may indeed fall into a rigidity trap because of their build-up of substantive capabilities, optimized to supporting their existing activities.

However, firms may also develop greater change capabilities over age, because transactional memory developed within the management team enables them to more

quickly and effectively react to business opportunities outside their current business model.

Also the firm's management team's ability to learn from internationalization is shown in an interesting light in our analysis. If the firm's management team has a long history of working together in the domestic market, this collaborative experience has a positive effect on the firm's ability to grow once opportunities to internationalize are grasped. Management team's experience therefore matters. However, in the context of internationalization, this experience turns into liability: shared domestic experience means that the firm will have more domestic lessons to unlearn, and the management team will not be able to fully assimilate the learning opportunities offered by internationalization. Management team's shared domestic experience, therefore, appears to be a double-edged sword, with a complex relationship with internationalization outcomes.

We found support that the entry mode intensity has a positive influence on sales growth. We argued that more intense entry mode allow more and deeper acquisition of foreign market knowledge. Direct contact with foreign customers, markets, and competitors provide richer learning opportunities and also permit firms to get a better understanding of the local institutional framework. The extent to which the firm accumulates foreign market knowledge regulates the resources committed to foreign operations (Johanson and Valhne, 1977). Firms will be more prone to commit resources and attention to international operation if they have good knowledge about foreign markets, it gives a feeling of confidence. A lack of foreign business knowledge, however, results in higher perceived costs of the internationalization process (Eriksson et al, 1997). Taken together, these two effects diminish the firms with lower stocks of foreign market knowledge to take full advantage of internationalization.

This study has some practical implication for entrepreneurs that pursue rapid internationalization. First, our analysis shows that the timing of internationalization is a key strategic decision in entrepreneurial firms. If the management wishes to take full

advantage of the formative influence of internationalization, they should seek to internationalize their activities early on. Postponing the internationalization with one or a couple of years proves to have a very strong negative effect on subsequent growth. The earlier the firm starts to internationalize, the more and better the firm is organized to benefit from international operations. The knowledge and skills set of older internationalizers is less tailor-made for international activities. Also, these organizations are confronted with stronger inertia which makes it more difficult to adapt to the international arena. Early internationalization may hurt the firm's chances of survival, however.

The complex effect of management team's shared domestic experience further complicates this decision situation. On the one hand, prior experience exerts a negative influence on the sales growth subsequent internationalization because these teams have more to unlearn. On the other hand, seasoned teams enjoy benefits through transactive memory and stronger cohesiveness which result in better and faster decision making. This implies that seasoned teams are more efficient in exploiting opportunities once identified and grasped. We found that the positive effect of prior collaborative experience counterbalances the negative effect. If teams do not have prior collaborative experience, they should invest time and resources in building strong, cohesive teams and problem solving capabilities.

5.7 Limitations and Conclusion

The limitations of this study are partially inherent to the research design. First, this study only focuses on one region Flanders (Belgium). This constitutes a strength as it limits non-measured variance. However, Flanders is characterized by a small domestic market where the pressure to internationalize is relatively high. Future studies could examine whether the formative influence of internationalization holds in larger markets. Second, we only considered young firms operating in high technology sectors. These industries are very dynamic and international in nature. Learning and capability development are crucial in such industries to realize sustained competitive advantage. Future research

could conduct similar studies in more stable industries, which would contribute to our understanding of the relationships between internationalization, capability development and internationalization.

Even though this is one of the first longitudinal studies to examine the relationship between internationalization and firm performance using the literature on organizational capabilities as a theoretical framework, it is restricted to a certain time frame and spans a relatively short period. Although we control for year effects, an extension of this study may consider time periods characterized by different economic dynamics and a longer time frame could capture the dynamism of capability development over time. Other extensions of this study are the examination of the influence of internationalization on other dependent variables such as survival.

We used a sparse model with a limited number of variables that are operationalized through objective measures (e.g. age at entry and entry mode intensity). We employed panel data to examine the dynamics of explanatory variables and their influence on sales growth. While beyond the scope of this paper, qualitative studies could study what young firms learn while internationalizing and how this results in capability development. Also, case studies could shed light on why entrepreneurs postpone internationalization and what rigidities are developed by doing so.

Internationalizing firms are exposed to a learning shock when they enter foreign markets (Pedersen and Petersen, 2004). The learning shock resulting from internationalization spurs the firm to adapt its routines and processes to the local context. Previous research suggests that the intensity of the learning shock differs between countries due to psychic distance (e.g. Barkema et al, 1996). It would be useful to study how psychic distance between countries influence capability development induced via the learning shock's intensity.

Further, it would be interesting to study the effect of changes in the management team on the relationship between internationalization and firm performance. Our study shows that

prior collaborative experience of the management team exercises a negative direct and a positive interaction effect on sales growth. Future research could explore how the process of internationalization, and thereby capability development, is influenced by bringing in external management.

In conclusion, this is one of the first empirical studies to explore the effect of internationalization on the formation of organizational advantage. The results are highly promising and suggest that further explorations into this space are necessary. Internationalization and entrepreneurial advantage appear closely intertwined.

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6 Conclusions, implications and directions for further research

This dissertation is a collection of three empirical papers on the internationalization of young, technology-based firms. The first study examines how different types of organizational learning contribute to the extent of internationalization of young, technology-based firms. We also study the relationship between interorganizational learning and experiential and congenital learning, respectively. The second paper contributes to a deeper understanding of the relationship quality between exchange partners. In particular, we employ homophily theory to test how similarities between organizations influence interorganizational trust. In the third paper of my dissertation I study how internationalization contributes to organizational advantage. More specifically, I draw on the organizational capability literature to analyze to what extent internationalization influences firm growth and how this formative effect is moderated by age at first internationalization, shared domestic experience of the management team, and entry mode intensity.

In this final chapter I summarize the main findings of these three studies. Next, I discuss the most important contributions for management science and we provide an overview of the implications for management practice. Last, I give an overview of the limitations of my study which give rise to potential avenues for future research.

6.1 Main findings

Organizational learning has a longstanding tradition in the internationalization literature as a theoretical framework. The process theory draws on experiential learning to explain the stage internationalization of firms whereas the international new venture theory implicitly employs the concept of congenital learning to explain fast internationalization of new ventures. Surprisingly, few studies have empirically examined the effects of learning from partners on internationalization. This thesis introduces **interorganizational learning as a key mechanism to explain fast internationalization of young firms.**

Learning from partners offers the young, technology-based firm new knowledge about foreign markets and provide opportunities to develop internationalization capabilities. By contributing to the stock of foreign market knowledge and internationalization capabilities, interorganizational learning decreases the perceived risks and uncertainties associated with going international. This study shows **that influence of interorganizational learning on internationalization varies according to firm's the amount of experiential learning**. Interorganizational learning is more exploratory by nature, which allows inexperienced firms to rapidly climb up the initial learning curve. However, the impact of this exploratory learning diminishes as the relative importance of the more exploitative experiential learning increases. This finding indicates that **interorganizational and experiential learning act as partial substitutes** in the context of young firm internationalization. Also, **a firm needs enough resources in terms of both financial means and people to successfully pursue international expansion**. Internationalization requires the financial means to set up entry modes and develop foreign markets as well as the people to manage and coordinate international activities. Next, this study suggests that it may not be accurate to conceive of internationalization as purely a growth strategy. At least in small open economies, **young, technology-based firms must internationalize, regardless whether the firm has growth as primary objective or not**. Further, the nature of the firm's business and environment do not influence the propensity to initiate and grow international sales, which provide further support **that internationalization is more a necessity than an option for firm growth**.

Next, this thesis provides new insights in the antecedents of interorganizational trust. Despite the widely accepted role of trust in the success of partnerships, few studies, however, have examined the factors that influence the level of interorganizational trust. This study addresses this caveat by examining how similarity between to partners contributes to higher levels of trust embedded in the relationship. Multivariate analysis shows that **trust is higher in domestic partners than in international partnerships**. Domestic firms share identical values and beliefs, which are deeply rooted in the functioning of organizations. The correspondence between two domestic partners breeds a spontaneous connection whereas two partners with different backgrounds have to

surmount this hurdle. For the international partnerships, this thesis shows that **cultural distance is positively associated with the level of trust**, which is contrary to expectations since there is the notion that cultural barriers hinders trust building. Further analysis indicates that establishing partnerships with international partners located in growth markets results in higher trust. This study suggests that **the level of trust in international partnerships is influenced by the market opportunities offered by the foreign partner to accelerate the young, technology-based firm's growth**. Contrary to expectations, lower organizational similarity between two exchange partners results in higher trust. Extending homophily theory by introducing the relative position of the focal firm in the relationship, this study shows that **young, technology-based have more trust in more established legitimate partners**. This indicates that trust results from a rational choice: the focal firm perceives the partner to be beneficial. Reputational effects and the external legitimacy provided by the partner through the relationship have an important influence on the level of trust. The level of interaction doesn't influence trust while **the relation between resource commitment and trust is found to positive and highly significant**. Higher resource commitment to the relationship reduces the risks of relationship dissolving, even when the outcomes are unclear or unfavorable. The investment of resources functions as a buffering for relationship failure. The **longevity of the relationship also positively influences the level of trust**. Trust develops through collaborative experience with the other party. Over time, organizations learn how the other party is organized and how it reacts to certain events and circumstances. Next, the relations between the independent variables in the model and interorganizational trust vary significantly between business partners (customers, suppliers, and commercial partners) and resource providers (technology partners and investors). More specifically, **the effect of organizational similarity is only significant in the sample of resource providers**.

Finally, this doctoral thesis brings more fine-grained insights in the relationship between internationalization and firm performance. Although internationalization as an outcome received considerable attention, there has been much less theorizing and empirical research on the link between internationalization (as predictor) and firm performance (as

an outcome) in small and medium sized companies. Even fewer studies have considered this process from the perspective of organizational capabilities. Cross-sectional time series analysis shows that **internationalization exerts a formative influence on performance**. The size of the domestic market is often insufficient to recover the high R&D costs made by young, technology-based firms and therefore imposes an important constraint on firm growth. Entering foreign markets constitute a learning shock which give rise to the development of new skills and capabilities and exposes the firm to new knowledge. This study shows that **age at entry has a strong negative effect on firm performance**. Young firms are less constrained by substantive capabilities for the domestic market and are therefore better able to adapt and optimize their organizational structure and capabilities to international activities. **The effect of age at entry is self-reinforcing** since younger internationalizing firms are more efficient in converting cross-border experience and learning into organizational growth.

Next, this study shows a complex relationship between shared domestic experience of the management team, internationalization, and firm performance. On the one hand, **long domestic experience of working together as a team has a negative influence on firm performance**. Through working together in the domestic market, managers develop “established true beliefs” about how their business works. These mental models hamper their ability to adapt to new, international markets and to improvise new approaches. On the other hand, the transactive memory developed through **joint working experience enables teams to pursue diversification opportunities encountered during internationalization, which results in higher firm performance**. Moreover, teams with prior working experience are more cohesive and have higher trust that speeds up decision making and also reduces the number of mistakes. Supplementary analysis show that **the positive influence of transactive memory of seasoned teams counterbalances the negative of strong mental models of teams with collaborative experience**. Finally, young, technology-based firms that use **entry modes with higher intensity enjoy higher firm performance**. The more intense the entry mode, the more intense is the exposure to foreign market influences and consequently the greater the learning effect of going international. Also, intense entry modes provide the opportunity for frequent social

interaction, which results in greater and more valuable knowledge acquisition in foreign markets.

6.2 Implications

6.2.1 Implications for management science

This research makes a number of contributions to management science. First, this study brings insights **the influence of networks on firm internationalization and the tension between explorative and exploitative learning**. So far, research has suggested that networks and partnerships influence internationalization of new and young ventures. By empirically measuring the acquisition of knowledge and capabilities in key partner relationships, this study highlights interorganizational learning as a key mechanism through which such network influence occurs.

Second, this thesis contributes to the broader organizational learning literature by providing a better understanding of how experiential learning and interorganizational learning relate to one another. These two types of organizational learning how lived in partly separate worlds and there has been little consideration of how these two learning mechanisms may interact. Using the argument “from exploration to exploitation”, this study shows that **learning through partners substitutes for learning-by-doing**. At early stages of the internationalization process, firms can speed international expansion by acquiring knowledge and skills through partners. This is a significant finding as it may be one of factors underlying the recently proposed concept “learning advantages of newness”.

Third, this thesis makes a contribution to **the literature on interorganizational relationships and trust**. This literature has mainly focused on the effects of interorganizational trust on different relationship outcomes such as knowledge sharing, mitigating transaction costs, and overall relationship performance. Surprisingly, few studies have examined the antecedents of trust. This study suggests that the level of trust between young, technology-based firms and key partners is driven by the extent to which

key partners provide market opportunities to accelerate firm growth and external legitimacy. These findings indicate that interorganizational trust in this context is the result of a rational process of reputation categorization.

Fourth, this doctoral research also contributes to **homophily theory by considering the principle of similarity at the organizational level**. The vast majority of studies using homophily theory is at the individual level and focused on socio-demographic characteristics of individuals. Only recently, scholars have started to apply homophily theory at the organizational level. This study extends previous research by considering the influence of different dimensions of homophily simultaneously and by introducing the direction of difference between two exchange partners. This direction captures the relative position of the focal firm to the partner organization.

Fifth, this thesis contributes to the **international entrepreneurship literature through a rare longitudinal examination of the effect of internationalization and firm performance**. Received literature on the relationship between internationalization and firm performance is characterized by inconsistencies and contradictions which arise partly from insufficient attention to the role of organizational capabilities. Also, this literature has not sufficiently paid attention to the organization's capability to adapt to new opportunities encountered during internationalization versus changing its current business model. This study provides a more balanced and nuanced view of the internationalization – performance relation by considering the effects of age at entry, shared domestic experience of the management team, and entry mode intensity.

Next, this thesis also brings new insights in **the imprinting effect of age on firm performance**. Organizational age exerts a strong imprinting effect on internationalizing firms and proves to develop into a long term ability to absorb and assimilate lessons learned through internationalization. This is an important finding since most studies on imprinting used a static approach whereas this thesis shows that imprinting is a self-reinforcing effect. The path-dependency of the imprinting effect has long-lasting

implications on how efficiently an internationalizing firm will be able to convert internationalization into firm growth.

Further, we contribute to the **entrepreneurship literature on teams by examining the direct and interaction influence of prior collaborative team experience on growth.**

The collaborative experience of the management team proves to be a double-edge sword in the context of young firm internationalization. Prior experience shows to have a negative direct impact on the performance of internationalizing firm but at the same time exerts a positive influence once the internationalization of the firm takes off. The overall impact, however, of prior collaborative experience on sales growth is found to be positive.

Finally, this study also proposes **a new measure to operationalize experiential learning.** Whereas previous research has typically operationalized experiential learning as the number of years of international sales, this study sought to measure the amount of experience the firms has gained following the logic of learning curve studies. The more fine-grained measure combines the number of years of international sales in different geographical regions and the type of entry mode used to serves these regions. This new measure should help to resolve some of the inconsistencies in previous research examining the relationship between experiential learning and firm internationalization.

6.2.2 Implications for practice

The findings and insights from this doctoral study are useful and relevant for entrepreneurs, managers, and investors and reveal some interesting implications for policy makers.

First, this thesis shows that **internationalization spurs firm growth:** organizations that internationalize enjoy faster growth. This is not surprising since technology-based industries are international by nature. Also, young, technology-based firms operate in international niche markets which results that the domestic market is often to small. Thus

prospective entrepreneurs should be aware that **internationalization is a crucial part of the business plan**. Entrepreneurs have to develop a well-thought internationalization strategy and assess which geographical regions to target and which entry modes are most appropriate given the characteristics of the technology. **For investors**, this finding indicate that **they should pay considerable attention to the viability of the internationalization strategy in their investment decision**.

Second, this thesis shows that the timing of internationalization is a key strategic decision in entrepreneurial firms. **Entrepreneurs should not postpone internationalization but start exporting products and services early after founding**. For example, postponing the internationalization process with five years is detrimental to subsequent sales growth: sales are almost 800 thousand Euros lower compared to those firms that initiate internationalization in the first year after founding. Early internationalizers do not suffer from established routines and capabilities, which makes that these firms have a greater adaptability to organizational change and are better capable to adjust their business practices to changing circumstances. Going international early on, however, may hurt the firm's chances of survival.

Third, this thesis offers some suggestions for entrepreneurs to achieve a higher extent of internationalization. First, international experience of the management team has a positive and significant effect on the firm's extent of internationalization. **Entrepreneurs that lack international experience should try to attract senior management team member with international experience**. This is also an important finding for investors that want to contribute to the performance of portfolio firms. **Investors** are well-know for helping their portfolio companies to build strong management teams. They **should pay specific attention to the level of previous international working experience** of external senior management when they assist their portfolio firms in the search for external managers.

Fourth, internationalization is a risky and difficult process that requires significant amounts of firm resources. **Entrepreneurs should assemble sufficient financial capital**

and human resources at founding if they want to deploy a large scale internationalization strategy. These means function as a buffer to mitigate the threats of fast internationalization and provide the young, technology-based firm the capacity to manage foreign operations.

Fourth, entrepreneurs with high international aspirations have to be aware of the potential role key partners can play. Learning from the key partner network does not only contribute to the extent of internationalization but also substitutes for experiential learning. Therefore, **entrepreneurs should acquire knowledge and skills from their partners because it is a key mechanism to speed up the internationalization process.** Partners are a valuable source of knowledge, information and skills and therefore merit particular attention from entrepreneurs. Entrepreneurs have to invest in building strong, high quality relationships with both business partners and resources providers. Potentially, **investor could help entrepreneurs in building network relationships** and thereby contribute to the success of their portfolio companies' internationalization efforts. They should also help entrepreneurs to speed up internationalization **in a proactive manner by utilizing their experiences with other portfolio companies.**

Finally, this thesis also provides some valuable insights for policy makers that want to support the internationalization of young, technology-based firms. Policy makers are well aware of the importance of internationalization for the realization of economic growth and regional prosperity. Even though policy makers have already develop certain support schemes for internationalizing firms, **the specific characteristics of young, technology-based firms require a more tailored approach in the development of policy measures.** This type of organization internationalizes typically very early on in their life cycle and target markets that are geographically distant. Also, the complexity of their products and services often inhibits young, technology-based firms to use domestic or foreign distributors to market their products and services. They are more or less forced to use high entry modes such as a local sales office. This requires significant investments and resources to set up and manage the local office. Policy could provide support and subsidize the required foreign infrastructure for young, technology-based firms.

Policy makers could also **facilitate the search for external management with international experience**. Novice entrepreneurs are tied up with setting up the business, (re)defining the strategy, assembling resources etc.; they lack the time to actively search for experienced management. In addition, they often have purely technical backgrounds and thus do not have the networks or contacts to rapidly identify potential candidates that can strengthen the team. Therefore, policy makers could create a matching services where entrepreneurs and experience management can meet such as the recent initiative DIILI in Finland.

The government **could also help young, technology-based firms to form partnerships with established players**. Young, technology-based firms are per definition confronted with the liability of newness and smallness which results in a very low organizational legitimacy. The liability of foreignness exacerbates this when young, technology-based firms starts to internationalize. The low level of organizational legitimacy prevents these firms to build strong partnerships with larger, older organizations. Governments could invest in the creation of cross-border network initiatives that involve both domestic and foreign business partners and resource providers. Policy makers should pay special attention to facilitate investment of foreign venture capital firms.

6.3 Limitations and directions for further research

As every empirical piece, this thesis is not without limitations, thereby providing avenues for future research. First, the **dataset is compromised of young, technology-based firms located in Flanders**. Although this has the benefit of reducing non-measured variance, it raises the question whether the results would hold in different environmental settings and for other types of firms. Flanders is characterized as a small, open economy geared towards exporting and young, technology-based firms operate in niche markets which are international by nature. Future research may perform similar studies in different context (e.g. small versus large domestic markets) and industries (e.g. low versus high tech) to contribute to our understanding of the generalizability of these findings.

Second, the first and second paper in this thesis have a **static character**. In paper one we study the influence of different types of learning on the extent of internationalization while in the second paper we examine how similarities between partners influence interorganizational trust. Given the cross-sectional nature of the data, we cannot provide insights in the causal dynamics of learning and internationalization. The design also does not allow testing for changes in the composition and the role of key partners at different phases of the internationalization process. Future studies could shed light on the temporal dynamics of learning, key partner networks, and internationalization. Similarly, we measured trust at a single point while trust might be triggered by certain events over time and thus has a cyclical nature. Longitudinal studies could provide more insights in the dynamics of trust between two exchange partners.

Third, we studied the role on key partners in shaping internationalization, which is a **subset of the firms' network**. The design ignores the effects of the size of the total network of the young, technology-based firm on the extent of internationalization. By looking at the comprehensive network of partners, future studies could provide further insights in the role of the breadth of interorganizational learning on firm internationalization. Such comprehensive efforts are, however, very difficult to execute. Also, future research could examine the conditions under which interorganizational occurs and explicate the factors and processes through which interorganizational learning takes place. For example, future research could include factors such as the knowledge base and location of the partners. An interesting extension of this thesis would be the use qualitative research methods to answer questions such as what, how, and why firms learn from each other.

Fourth, an interesting area for future research is to further study **the concept of absorptive capacity**. This construct received substantial attention in the literature (more than 2500 citations) and has been operationalized in different ways. We have conceptualized absorptive capacity as the prior international working experience of the founding team and slack resources. Due to data limitations we could not test whether the prior experience of the team working with networks is a better determinant of absorptive

capacity. Future empirical work could explore the role of alternative approaches in operationalizing absorptive capacity in different contexts.

Fifth, the findings of this thesis suggest that in particular cases **dissimilarity between two partners leads to more trust than similarity**. We find that trust is higher only when two partners have identical cultural backgrounds; trust increases with increased cultural distance. Additional analysis insinuates that trust may be influenced by the extent to which partners offer market opportunities to the young, technology-based firm. Also, legitimacy and reputation effects seem to intervene with the similarity-trust relation. The complex cultural distance – trust relation and the interaction between legitimacy, reputation and trust need further exploration and study.

Finally, an interesting avenue for future research is to further explore **the role of teams in the context of firm internationalization**. The results clearly indicate that teams play a very important role in the internationalization process. More international experience of the founding team results in higher levels of internationalization. The decision of the management team to initiate the internationalization process proves to have an important imprinting effect on subsequent sales growth. Also, this thesis shows a complex relationship between prior collaborative experience of the team and the performance of internationalizing firms. Future research could bring more insights how the decision process about internationalization and team dynamics contribute to successful internationalization of firms. For example, how does the internationalization strategy of the firm alter when internationally experienced people join the team

Appendices: Instrument

A. GROWTH OF THE COMPANY: REVENUES AND EMPLOYMENT

Year after founding	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Revenues (Ths. Euro)							
Employment (FTE)							

Year after founding	8 th	9 th	10 th	11 th	12 th	13 th	14 th
Revenues (Ths. Euro)							
Employment (FTE)							

B. INTERNATIONAL DIMENSION OF THE COMPANY'S ACTIVITIES

B1. Does your company have international sales? Yes ☐ No ☐

Please indicate the year of the first international sale: _____

Please indicate **the percent of annual revenues** coming from each of the 10 markets listed below

If your company has more than 10 years of international sale, please feel free to add columns

Year of international sale	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
Belgium										
EU minus Belgium										
Rest of Europe										
US										
Canada										
Latin America										
Far East										
Middle East										
Africa										
Australia										
Total	100	100	100	100	100	100	100	100	100	100

B2. Does your company have international subsidiaries? Yes ☐ No ☐

Please indicate the year of the first subsidiary: _____

Please indicate **the percent of employment** created in each of the 10 markets listed below

If your company has more than 10 years of international employment, please feel free to add columns

Year of subsidiary	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
Belgium										
EU minus Belgium										
Rest of Europe										
US										
Canada										
Latin America										
Far East										
Middle East										
Africa										
Australia										
Total	100	100	100	100	100	100	100	100	100	100

B3. Did the company acquire other companies to expand its international activities? Yes ☐ No ☐

What was the reason for the acquisition?

A. To have access to a complementary knowledge base. Please indicate the number of “technology driven” international acquisitions: _____. Please indicate the year(s) in which these acquisitions took place: _____.

How many employees were employed in each acquired company at the time of acquisition? _____.

B. To have access to an additional sales network. Please indicate the number of “commercial driven” international acquisitions: _____. Please indicate the year(s) in which these acquisitions took place: _____.

How many employees were employed in each acquired company at the time of acquisition? _____.

B4. What entry mode did you use to enter the following markets listed below?

Type of entry mode	Direct export	Licensing	Domestic distributor	Foreign distributor	Sales office	Whole subsidiary
Belgium						
EU minus Belgium						
Rest of Europe						
US						
Canada						
Latin America						
Far East						
Middle East						
Africa						
Australia						

Please indicate (*) which type of entry mode was used first

B5. To what extent did the following factors lead to your company commencing international activities?

Please rate on a scale from 1 to 7, where 1= not important at all and 7= very important

A large proportion of potential customers is located outside Belgium	1	2	3	4	5	6	7
The Belgian market is too small for us	1	2	3	4	5	6	7
The Belgian market is growing too slowly for us	1	2	3	4	5	6	7
Our Belgian customer(s) needed our products/services in their foreign locations	1	2	3	4	5	6	7
We responded to an inquiry from a foreign customer	1	2	3	4	5	6	7
We spotted an opportunity to serve a foreign customer	1	2	3	4	5	6	7
We wanted to lower our production costs (e.g., costs of raw materials, R&D, operations)	1	2	3	4	5	6	7
Some of our suppliers are outside Belgium	1	2	3	4	5	6	7
Our competitors also compete in foreign markets	1	2	3	4	5	6	7
The other players in our industry are internationalizing	1	2	3	4	5	6	7
We wanted to capitalize on information that we had on foreign markets	1	2	3	4	5	6	7
We wanted to utilize the experience that our management or employees have in working in overseas markets	1	2	3	4	5	6	7
Through internationalization, our company tries to acquire information on current trends and new innovations	1	2	3	4	5	6	7
Most of the innovations in our industry occur in foreign markets	1	2	3	4	5	6	7
We followed the internationalization strategy of our customers	1	2	3	4	5	6	7

C. GROWTH ORIENTATION OF THE COMPANY + RISK-TAKING

C1. Please allocate 100 points between the statements below to describe your company's growth strategy. For example, if you are primarily trying to grow by increasing sales to your existing customers, you might mark 90 vs 10.

1. We focus on increasing our sales to our _____ vs _____ We are trying to grow more by
existing customers selling to new customers
2. We focus on increasing our sales _____ vs _____ We are trying to grow more by
domestically selling abroad

C2. Please allocate 100 points between 5 typical strategic goals to indicate how important they have been to the firm over the past 3 years.

Maximising sales	
Profitability	
Technical superiority	
Maximising company value	
Sustainability	
Total points	100

C3. To what extent do you agree with the statements below? (1 = Completely disagree, 4 = neutral, 7 = completely agree)

Growing as rapidly as possible is the most important goal of this company	1	2	3	4	5	6	7
Our firm believes in gradually, incremental innovation	1	2	3	4	5	6	7
Aiming for high growth is not what drives this venture	1	2	3	4	5	6	7
Our firm strongly favours high risk projects	1	2	3	4	5	6	7
Our firm believes in gradually, incremental behaviour	1	2	3	4	5	6	7
When confronted with decision-making situations involving uncertainty, our firm adopts an aggressive posture	1	2	3	4	5	6	7
We are seeking to rapidly expand our customer base domestically	1	2	3	4	5	6	7
We are striving to increase our sales to existing domestic customers	1	2	3	4	5	6	7
We are seeking to rapidly expand our customer base internationally	1	2	3	4	5	6	7
We are striving to increase our sales to existing overseas customers	1	2	3	4	5	6	7

D. MANAGEMENT TEAM

D1. Check the appropriate boxes for each of the founders (F1, F2, F3,...).

Original founding team

F1

F2

F3

F4

F5

Number of years of international experience at moment of founding					
Number of years of overseas experience at moment of founding					

D2. Please indicate carefully when management joined or management/founders left the team and what their function is/was.

Additions to the team

A1

A2

A3

A4

A5

Date of joining the firm (<i>mm/yy</i>)					
Function today					
Number of years of international experience before joining					
Number of years of overseas experience before joining					

Exits from the team

E1

E2

E3

E4

E5

Date of leaving the firm (<i>mm/yy</i>)					
Function at moment of leaving the firm					

D3. To what extent have founders built an international network during their previous working experience or education before founding the company? (1 = not at all, 4 = neutral, 7 = very extensive)

An international network of potential financial investors	1	2	3	4	5	6	7
An international network of potential partners for technology development	1	2	3	4	5	6	7
An international network of potential partners for commercialization activities	1	2	3	4	5	6	7
An international network of potential customers	1	2	3	4	5	6	7

D4. To what extent have founders, managers and sales people individual-level contact in the international operating environment? (1 = not at all, 4 = neutral, 7 = very extensive)

The individual contacts of founders and managers to sales agents and distribution networks	1	2	3	4	5	6	7
The individual contacts of sales people to sales agents and distribution networks	1	2	3	4	5	6	7

F. MOST IMPORTANT NETWORK RELATIONSHIPS OF THE COMPANY

This section focuses on your company's most important relationship in each relationship category. Please focus on the relationship that has had the most strategic importance for your company **over the past 1-3 years**.

F1. Most important **customer over the past 1-3 years**: Name = _____

Is your most important customer also the largest customer in terms of revenues?

Yes / No

If no, why is this customer your most important customer? _____

Which % of total revenue came from this customer in 2004? _____ %

Since when has your company been doing business with this customer? _____ year

How often does your company interact with the main customer? (tick one)

☐ Almost every day ☐ 2-3 times a week ☐ Once a week ☐ 1-3 times a month ☐ Less than a month

F1.1. With your **most important customer** in mind, please indicate the extent to which you agree with the statements below. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

Because we supply to this customer we are able to obtain a tremendous amount of market knowledge	1	2	3	4	5	6	7
We get most of our valuable information on customer needs and trends from this customer	1	2	3	4	5	6	7
Our company learnt or acquired some new or important information about foreign markets from this customer	1	2	3	4	5	6	7
This customer has helped us to build our capabilities/skills towards internationalization	1	2	3	4	5	6	7
We get most of our valuable technical know-how related to supplying our product/service from this customer relationship	1	2	3	4	5	6	7
Because of this customer we are able to build up a tremendous amount of technical know-how	1	2	3	4	5	6	7
The information we get from this customer is highly valuable for our research and development efforts	1	2	3	4	5	6	7
We have gotten new customer contacts through this customer	1	2	3	4	5	6	7
This customer has "opened the doors" of other customers for us	1	2	3	4	5	6	7
This customer has helped us develop other network relationships	1	2	3	4	5	6	7

F1.2. On a scale from 1 to 7, please rate the extent to which you agree with the following statements. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

We feel this partner is looking out for our interests	1	2	3	4	5	6	7
Transactions with this partner do not have to be closely supervised	1	2	3	4	5	6	7
This partner may use opportunities that arise to his profit at our expense	1	2	3	4	5	6	7
We are convinced that this partner respects the confidentiality of the information he receives from us	1	2	3	4	5	6	7
This partner has always been neutral in its negotiations with us	1	2	3	4	5	6	7
Based on past experience, we can not confidently rely on the promises this partner makes to us	1	2	3	4	5	6	7
We are willing to put considerable effort and investment into building our business with this partner	1	2	3	4	5	6	7
We expect our relationship with this partner to continue for a long time	1	2	3	4	5	6	7
We expect to increase business with this partner in the future	1	2	3	4	5	6	7
We have invested a lot of effort in the existing relationship with this partner	1	2	3	4	5	6	7
We hope that the relationship with this partner will strengthen over time	1	2	3	4	5	6	7
This partner does frequently business with us	1	2	3	4	5	6	7
Even when there should be a major change at the side of this partner (product-innovation, reallocation,...) we would not easily terminate our relationship with this partner	1	2	3	4	5	6	7
We are already doing business with this partner for a very long time	1	2	3	4	5	6	7
This partner is trustworthy	1	2	3	4	5	6	7
We are committed to this partner	1	2	3	4	5	6	7
The relationship with this partner is strong and well-established	1	2	3	4	5	6	7

F2. Most important **Supplier over the past 1-3 years**: Name = _____

Is your most important supplier also the largest supplier in terms of purchases?

Yes / No

If no, why is this supplier your most important supplier?

Which % of total purchases came from this supplier in 2004?

_____ %

Since when has your company been doing business with this supplier?

_____ year

How often does your company interact with this supplier? (tick one)

☐
☐
☐
☐
☐

Almost every 2-3 times a Once a week 1-3 times a Less than once
day week month a month

F2.1. With your **most important supplier** in mind, please indicate the extent to which you agree with the statements below. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

Because we buy from this supplier we are able to obtain a tremendous amount of market knowledge.	1 2 3 4 5 6 7
We get most of our valuable information on customer needs and trends from this supplier	1 2 3 4 5 6 7
Our company learnt or acquired some new or important information about foreign markets from this supplier	1 2 3 4 5 6 7
This supplier has helped us to build our capabilities/skills towards internationalization	1 2 3 4 5 6 7
We get most of our valuable technical know-how related to supplying our products/services from this supplier relationship	1 2 3 4 5 6 7
Because of this supplier we are able to build up a tremendous amount of technical know-how	1 2 3 4 5 6 7
The information we get from this supplier is highly valuable for our research and development efforts	1 2 3 4 5 6 7
We have gotten new suppliers contacts through this supplier	1 2 3 4 5 6 7
This supplier has “openend the doors” of other suppliers for us	1 2 3 4 5 6 7
This supplier has helped us develop other network relationships	1 2 3 4 5 6 7

F2.2. On a scale from 1 to 7, please rate the extent to which you agree with the following statements. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

We feel this partner is looking out for our interests	1 2 3 4 5 6 7
Transactions with this partner do not have to be closely supervised	1 2 3 4 5 6 7
This partner may use opportunities that arise to his profit at our expense	1 2 3 4 5 6 7
We are convinced that this partner respects the confidentiality of the information he receives from us	1 2 3 4 5 6 7
This partner has always been neutral in its negotiations with us	1 2 3 4 5 6 7
Based on past experience, we can not confidently rely on the promises this partner makes to us	1 2 3 4 5 6 7
We are willing to put considerable effort and investment into building our business with this partner	1 2 3 4 5 6 7
We expect our relationship with this partner to continue for a long time	1 2 3 4 5 6 7
We expect to increase business with this partner in the future	1 2 3 4 5 6 7
We have invested a lot of effort in the existing relationship with this partner	1 2 3 4 5 6 7
We hope that the relationship with this partner will strengthen over time	1 2 3 4 5 6 7

This partner does frequently business with us	1	2	3	4	5	6	7
Even when there should be a major change at the side of this partner (product-innovation, reallocation,...) we would not easily terminate our relationship with this partner	1	2	3	4	5	6	7
We are already doing business with this partner for a very long time	1	2	3	4	5	6	7
This partner is trustworthy	1	2	3	4	5	6	7
We are committed to this partner	1	2	3	4	5	6	7
The relationship with this partner is strong and well-established	1	2	3	4	5	6	7

F3. Most important partner for **commercial activities over the past 1-3 years**: Name = _____

Is your most important partner for commercial activities also the largest commercial partner in terms of generated revenues for you? Yes / No

If no, why is this commercial partner your most important commercial partner?

Since when do you cooperate with this partner for commercial activities? _____ year

Approximately how much in sales does this relationship generate for you? In 2004: _____ K Euro

How often does your company interact face-to-face with the main partner for commercial activities? (tick one)

☐ Almost every day
☐ 2-3 times a week
☐ Once a week
☐ 1-3 times a month
☐ Less than once a month

F3.1. With your **most important partner for commercial activities** in mind, please indicate the extent to which you agree with the statements below. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

Because we cooperate with this partner we are able to obtain a tremendous amount of market knowledge.	1	2	3	4	5	6	7
We get most of our valuable information on customer needs and trends from this partner	1	2	3	4	5	6	7
Our company learnt or acquired some new or important information about foreign markets from this partner	1	2	3	4	5	6	7
This partner has helped us to build our capabilities/skills towards internationalization	1	2	3	4	5	6	7
We get most of our valuable technical know-how related to supplying our products/services from this partner	1	2	3	4	5	6	7
Because of this partner we are able to build up a tremendous amount of technical know-how	1	2	3	4	5	6	7

The information we get from this partner is highly valuable for our research and development efforts	1	2	3	4	5	6	7
We have gotten new commercial partners contacts through this partner	1	2	3	4	5	6	7
This partner has “openend the doors” of other commercial partners for us	1	2	3	4	5	6	7
This partner has helped us develop other network relationships	1	2	3	4	5	6	7

F3.2. On a scale from 1 to 7, please rate the extent to which you agree with the following statements. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

We feel this partner is looking out for our interests	1	2	3	4	5	6	7
Transactions with this partner do not have to be closely supervised	1	2	3	4	5	6	7
This partner may use opportunities that arise to his profit at our expense	1	2	3	4	5	6	7
We are convinced that this partner respects the confidentiality of the information he receives from us	1	2	3	4	5	6	7
This partner has always been neutral in its negotiations with us	1	2	3	4	5	6	7
Based on past experience, we can not confidently rely on the promises this partner makes to us	1	2	3	4	5	6	7
We are willing to put considerable effort and investment into building our business with this partner	1	2	3	4	5	6	7
We expect our relationship with this partner to continue for a long time	1	2	3	4	5	6	7
We expect to increase business with this partner in the future	1	2	3	4	5	6	7
We have invested a lot of effort in the existing relationship with this partner	1	2	3	4	5	6	7
We hope that the relationship with this partner will strengthen over time	1	2	3	4	5	6	7
This partner does frequently business with us	1	2	3	4	5	6	7
Even when there should be a major change at the side of this partner (product-innovation, reallocation,...) we would not easily terminate our relationship with this partner	1	2	3	4	5	6	7
We are already doing business with this partner for a very long time	1	2	3	4	5	6	7
This partner is trustworthy	1	2	3	4	5	6	7
We are committed to this partner	1	2	3	4	5	6	7
The relationship with this partner is strong and well-established	1	2	3	4	5	6	7

F4. Most important partner for **technology development over the past 1-3 years**: Name = _____

Since when do you cooperate with this partner for technological development _____ year

How is your relationship with this partner formalized (e.g. licensing, research contract)? _____

How many products resulted from the cooperation with your main technology partner? _____

How often does your company interact with the main technology partner? (tick one)

☐ Almost every day
 ☐ 2-3 times a week
 ☐ Once a week
 ☐ 1-3 times a month
 ☐ Less than a month

F4.1. With your **most important partner for technology development** in mind, please indicate the extent to which you agree with the statements below. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

Because we cooperate with this partner we are able to obtain a tremendous amount of market knowledge.	1	2	3	4	5	6	7
We get most of our valuable information on customer needs and trends from this partner	1	2	3	4	5	6	7
Our company learnt or acquired some new or important information about foreign markets from this partner	1	2	3	4	5	6	7
This partner has helped us to build our capabilities/skills towards internationalization	1	2	3	4	5	6	7
We get most of our valuable technical know-how related to supplying our product/service from this partner	1	2	3	4	5	6	7
Because of this partner we are able to build up a tremendous amount of technical know-how	1	2	3	4	5	6	7
The information we get from this partner is highly valuable for our research and development efforts	1	2	3	4	5	6	7
We have gotten new partners for technology development contacts through this partner	1	2	3	4	5	6	7
This partner has "opened the doors" of other partners for technology development for us	1	2	3	4	5	6	7
This partner has helped us develop other network relationships	1	2	3	4	5	6	7

F4.2. On a scale from 1 to 7, please rate the extent to which you agree with the following statements. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

We feel this partner is looking out for our interests	1	2	3	4	5	6	7
Transactions with this partner do not have to be closely supervised	1	2	3	4	5	6	7
This partner may use opportunities that arise to his profit at our expense	1	2	3	4	5	6	7
We are convinced that this partner respects the confidentiality of the information he receives from us	1	2	3	4	5	6	7
This partner has always been neutral in its negotiations with us	1	2	3	4	5	6	7
Based on past experience, we can not confidently rely on the promises this	1	2	3	4	5	6	7

partner makes to us	
We are willing to put considerable effort and investment into building our business with this partner	1 2 3 4 5 6 7
We expect our relationship with this partner to continue for a long time	1 2 3 4 5 6 7
We expect to increase business with this partner in the future	1 2 3 4 5 6 7
We have invested a lot of effort in the existing relationship with this partner	1 2 3 4 5 6 7
We hope that the relationship with this partner will strengthen over time	1 2 3 4 5 6 7
This partner does frequently business with us	1 2 3 4 5 6 7
Even when there should be a major change at the side of this partner (product-innovation, reallocation,...) we would not easily terminate our relationship with this partner	1 2 3 4 5 6 7
We are already doing business with this partner for a very long time	1 2 3 4 5 6 7
This partner is trustworthy	1 2 3 4 5 6 7
We are committed to this partner	1 2 3 4 5 6 7
The relationship with this partner is strong and well-established	1 2 3 4 5 6 7

F5. Most important **investor**: Name = _____

Is your most important investor also the largest investor in terms of capital invested? Yes / No

If no, why is this investor your most important investor?

How much did your most important investor invest in your company? _____
KEuro

Please indicate the % shares the most important investor has in return for the capital invested _____%

What is your most important investor's time horizon, how long will his money stay in your company? _____ year

Since when is the most important investor shareholder of your company? _____ year

Did your main financial partner find additional financing for your venture? Yes / No

So yes: how much _____
KEuro

How often do/did main investor and management interact? (tick one)

☐ Almost every 2-3 times a week
 ☐ Once a week
 ☐ 1-3 times a month
 ☐ Less than a month

F5.1. With your **most important investor** in mind, please indicate the extent to which you agree with the statements below. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

Our most important investor mainly controls the company's operations	1	2	3	4	5	6	7
Our most important investor has value added to the company	1	2	3	4	5	6	7
Because of this investor we are able to obtain a tremendous amount of market knowledge.	1	2	3	4	5	6	7
We get most of our valuable information on customer needs and trends from this investor	1	2	3	4	5	6	7
Our company learnt or acquired some new or important information about foreign markets from this investor	1	2	3	4	5	6	7
This investor has helped us to build our capabilities/skills towards internationalization	1	2	3	4	5	6	7
We get most of our valuable technical know-how related to supplying our products/services from this investor	1	2	3	4	5	6	7
Because of this investor we are able to build up a tremendous amount of technical know-how	1	2	3	4	5	6	7
The information we get from this investor is highly valuable for our research and development efforts	1	2	3	4	5	6	7
We have gotten new investors contacts through this investor	1	2	3	4	5	6	7
This partner has "opened the doors" of other investors for us	1	2	3	4	5	6	7
This partner has helped us develop other network relationships	1	2	3	4	5	6	7

F5.2. On a scale from 1 to 7, please rate the extent to which you agree with the following statements. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

We feel this partner is looking out for our interests	1	2	3	4	5	6	7
Transactions with this partner do not have to be closely supervised	1	2	3	4	5	6	7
This partner may use opportunities that arise to his profit at our expense	1	2	3	4	5	6	7
We are convinced that this partner respects the confidentiality of the information he receives from us	1	2	3	4	5	6	7
This partner has always been neutral in its negotiations with us	1	2	3	4	5	6	7
Based on past experience, we can not confidently rely on the promises this partner makes to us	1	2	3	4	5	6	7
We are willing to put considerable effort and investment into building our business with this partner	1	2	3	4	5	6	7
We expect our relationship with this partner to continue for a long time	1	2	3	4	5	6	7
We expect to increase business with this partner in the future	1	2	3	4	5	6	7

We have invested a lot of effort in the existing relationship with this partner	1	2	3	4	5	6	7
We hope that the relationship with this partner will strengthen over time	1	2	3	4	5	6	7
This partner does frequently business with us	1	2	3	4	5	6	7
Even when there should be a major change at the side of this partner (product-innovation, reallocation,...) we would not easily terminate our relationship with this partner	1	2	3	4	5	6	7
We are already doing business with this partner for a very long time	1	2	3	4	5	6	7
This partner is trustworthy	1	2	3	4	5	6	7
We are committed to this partner	1	2	3	4	5	6	7
The relationship with this partner is strong and well-established	1	2	3	4	5	6	7

F5.3. Please indicate which of the following roles your **most important investor** provided to your company. Indicate also how important it was to you that the main investor carried out this role and how effective you found your main investor was in carrying out this role?

ROLES	<u>Carried out this role?</u> Yes - No	<u>Importance</u> 1=not important 7=very important	<u>Effectiveness</u> 1=very low effectiveness 7=very high effectiveness
Find additional financing			
Open doors (network)			
Meet the entrepreneurs regularly			
Negotiate important contracts			
Contact potential customers			

G. PRODUCTS/SERVICES OF THE COMPANY

In this section, I want to learn more about your products/services.

G1. Please rate the extent to which you agree with the following statements. (1 = strongly agree, 4 = neither agree nor disagree, 7 = strongly disagree)

It is easy to comprehensively document the usage of our products/services in manuals or reports	1	2	3	4	5	6	7
It is difficult to precisely communicate the usage of our products/services through written documents	1	2	3	4	5	6	7
A useful manual describing our products/services can be written	1	2	3	4	5	6	7
Our customers can easily learn how to use our products/services by studying a	1	2	3	4	5	6	7

complete set of blueprints							
Our products/services are highly sophisticated and complex	1	2	3	4	5	6	7
Our customers can not use our products/services without having received specific training	1	2	3	4	5	6	7
Our competitors could easily copy our products/services by investigating them	1	2	3	4	5	6	7

G2. Please allocate 100 points between the statements below to describe the product and service components of your company's products

1. % product component of 1st generation _____ vs _____ % service component of 1st generation products
2. % product component of current _____ vs _____ % service component of current generation products